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PAPER TRADE JOURNAL

Vol. LXXXVII, No. 1 JULY 5, 1928 United States, Per Annum, $4.00 Canada and Foreign Countries in Postal Union, $5.00

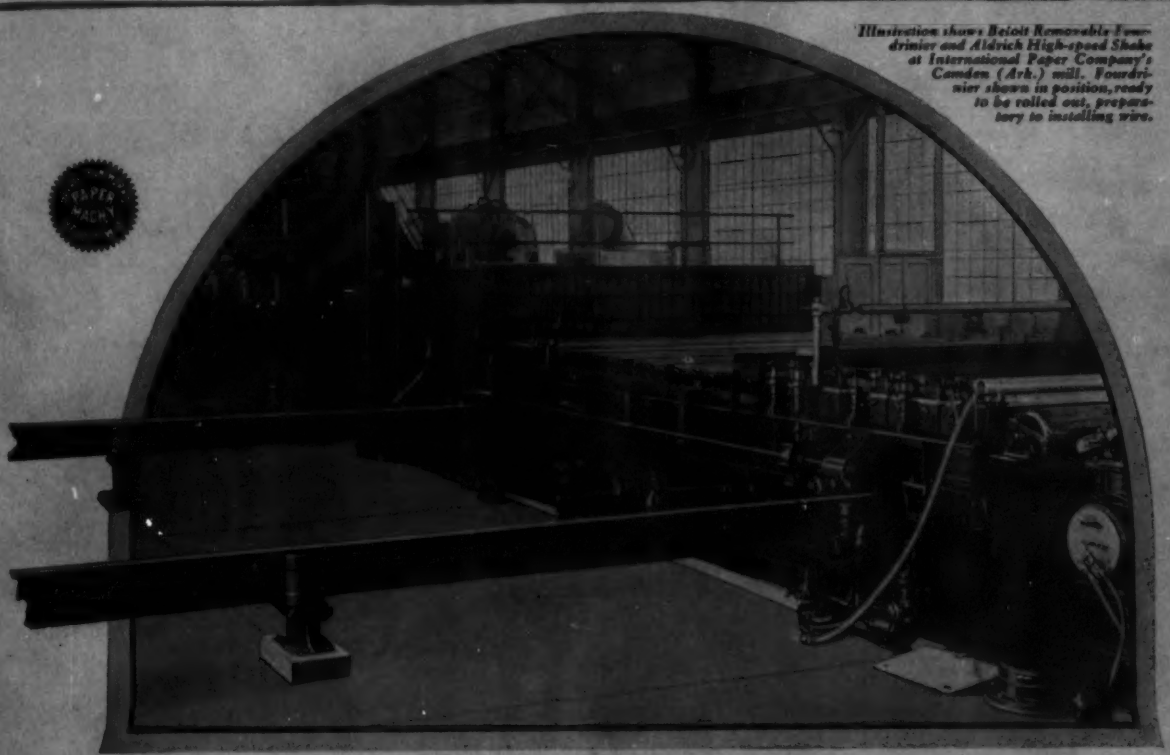

Illustration shows Beloit Removable Fourdrinier and Aldrich High-speed Shake at International Paper Company's Camden (Ark.) mill. Fourdrinier shown in position, ready to be rolled out, preparatory to installing wire.

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Entered as second class matter August 13, 1925, at the Post Office at East Stroudsburg, Pa., under Act of Congress of March 3, 1879. ESTABLISHED 1872 FIFTY-SEVENTH YEAR Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., E. Stroudsburg, Pa. EXECUTIVE AND EDITORIAL OFFICES: 10 East 39th STREET NEW CITY. CHICAGO, 127 West Madison Street, Chicago, Ill.

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PAPER TRADE JOURNAL

ESTABLISHED 1872

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SEVENTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President
F. K. HOPPIE, Secretary

Executive and Editorial Offices, 10 East 39th Street, New York
Chicago Office: 123 West Madison St

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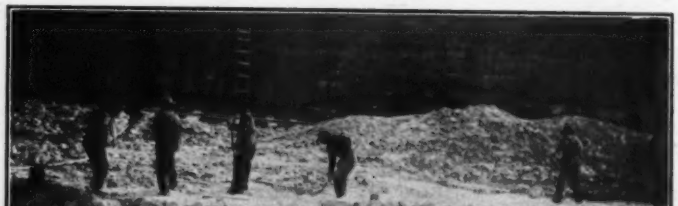
PAPER CLAY



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PAPER

Vol. LXXXVII No. 1 Thursday, July 5, 1928

International Co. to Recast Capital Structure

Stockholders Asked to Exchange Their Preferred and Common Stock for Securities of New Holding Company to be Named International Paper & Power Co., a Massachusetts Association—Entire Control of New England Power Association to be Substantially Acquired—Plan Provides More Flexible Method of Financing Future Developments

Stockholders of the International Paper Company have recently received a letter enclosing a plan and agreement for the recasting of the International Paper capital structure through the formation of a new holding company to be named "International Paper and Power Company." Under the provisions of the plan and agreement the stockholders of International Paper Company are asked to deposit their preferred and common stock in exchange for shares of this new company on the following basis: (a) For each share of 7 per cent preferred stock of International Paper Company they are to receive one share of 7 per cent preferred stock of the new company; (b) For each share of 6 per cent preferred stock of International Paper Company they are receive one share of 6 per cent preferred stock of the new company; (c) For each share of common stock of International Paper Company they are to receive one share of Class A common stock, one share of Class B common stock and one share of Class C common stock of the new company, a total of three shares.

The International Paper Company has acquired extensive pulp and paper mill properties, woodlands, water powers and hydro-electric developments in the United States, Canada and Newfoundland. These interests have become so widespread and diversified that the company has outgrown its present capital structure. It has therefore been deemed advisable to form the new company which will be a holding company directing the activities of these various interests and which it is expected will acquire substantially the entire control of the New England Power Association.

Advantages of New Organization

In choosing the form and capital structure of the new company, the management has been guided by two main considerations: (1) it is believed desirable that the new company be in position to acquire full control of the New England Power Association, and (2) it is desired to provide a more flexible method of financing future developments and acquisitions of the company, particularly in the power and utility field. The New England Power Association is a Massachusetts voluntary association and its control cannot as a practical matter be held by an incorporated company or by any association formed under the laws of any other state. The new company, therefore, will be formed as a Massachusetts voluntary association in order that it may own substantially the entire control of the New England Power Association and be free from restrictions imposed in the case of corporations.

In order to put the company on a more satisfactory basis for future financing, the common stock will be split into three shares for one of the present shares. The dividend provisions on the three shares of the new company are such that in financing future acquisitions and developments the company will have available classes of stock designed to forego dividend return up to a limited amount but to retain their full share in the equity of the new company and its future prospects. It is believed that these provisions will materially improve the company's position and to that extent will be beneficial to its stockholders.

In addition to these main considerations, it is believed that since the new company is to be primarily a holding company, the direction of its wide spread interests will be more flexible and will have distinct advantages over the present organization of International Paper Company. International Paper Company now serves not only as a holding company controlling Canadian pulp and paper and hydro-electric properties, Newfoundland pulp and paper properties, and United States power and paper properties, but also owns and operates directly a number of the paper and pulp mills and hydro-electric plants in the United States.

New England Power Association

It is universally recognized that there are few fields of endeavor in which there are the possibilities for development and the stability of earnings that are inherent in the utility business, particularly that branch which involves the development of hydro-electric power and its wholesale and retail distribution. New England Power Association is the holding company for properties located in Massachusetts, New Hampshire, Vermont and Rhode Island, comprising the New England Power System. These properties constitute the largest power system in the New England States and distribute annually about 1,000,000,000 kilowatt hours of electric energy to a group of highly industrialized centers which are connected by a comprehensive network of high tension lines. Power is generated in eleven hydro-electric and six steam plants advantageously located to permit effective and economical transmission throughout the territory served. Through interconnection with large hydro-electric and steam generating plants of other companies in Southern New England and New York State, the New England Power System is able to purchase large amounts of primary and surplus power that these plants have available. Over 250 communities having a population in excess of 2,500,000 are served by the system either directly or through contracts with local distributing companies.

In connection with its paper mills the International Paper Com-

(*Continued on page 36*)

Ontario Paper Manufacturers Continue Active

Book Paper Plants Booked Well Ahead Into Summer Months—Machines on Bonds and Ledgers Running Close to Capacity—Coated Paper Mills Remain Fairly Busy—Demand For Tissues, Crepes, Toilets and Specialty Lines Keeping Up Well

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, July 2, 1928.—According to the testimony of a number of the paper wholesalers in Toronto a bigger volume of business is passing in the city than in the province generally. Toronto is the center of printing activity in Ontario and that industry is quite busy, with many of the plants making large requisitions for paper. There is a good demand for book, bonds and ledgers, and some of the jobbers report difficulty in getting shipment from the mills of some of the standard stock lines, particularly of bonds. The fine paper market all round is in a satisfactory condition, with prices firm and demand satisfactory. On the other hand, the coarse paper market, as far as wrapping and paper bags go, is somewhat quiet, although some firms have a nice record of business so far this spring. Generally speaking, however, the coarse paper market is showing less activity than the fine papers. It is pointed out in the fine paper trade that many of the printers stocked up during the recent price war and that this was expected to cause a cessation of buying for some time. This anticipated result, however, does not appear to have materialized to any great extent. There is a steady demand for all classes of fine papers and the summer months are expected to produce some really good business in that department.

Business conditions generally throughout the province, and in Canada as a whole, are on a satisfactory and steadily improving basis and this has had its effect on the paper converting trade, which is quite busy. Envelope manufacturing firms are active and there is a good call for blank books and manufactured stationery lines. There has been no diminution in mill activity, book paper plants having orders ahead that will take them well into the summer months. Machines on bonds and ledgers are also running quite close to capacity, while coated paper mills are fairly busy under a good call for catalogue stock. Having eliminated some of the more unprofitable lines the light weight paper manufacturers are having less turnover but they are making more money and the demand for tissues, crepes, toilets and specialty lines keeps up well.

The paper box industry continues active and it is proving a good outlet for the board mills, which have been running close to capacity all Spring. In the waste rag and paper department, collectors report a well sustained demand, especially for paper stock, by the paper mills, with a strong market generally. As far as the pulp market goes the situation remains unchanged from week to week, with very little strength to the situation, and paper mills buying only as they require the stock, and pulp manufacturers making no surplus stocks.

Pipe Line Unites Two Mills

The installation of a pipe line between the Thunder Bay pulp mill at Current River and the main paper mill at Bare Point, Port Arthur, Ont., a distance of 2½ miles, is underway. The pipe line will be used for pumping the product from the Current River mill in slush form, direct from the grinders and converges at the far end, along with the fresh stock from the Bare Point mill grinders. The equipment will be in operation before the fall. The line is similar in construction and purpose to an installation at the Wisconsin Rapids plant, which carries sulphite through a pipe line, over four miles long. C. E. Jackson, general manager of the Thunder Bay Mills, states the stock will go through the pipe line at about a density of one per cent. The pipe is ten inches wide, and is connected at the Current River end by an eight inch Hayton centrifugal pump, manufactured by the Port Arthur Shipbuilding Company. The pipe was made by the Canada Iron Foundry at Fort William. The actual work of installation is being done by Alex McFarlaned and a crew of men. The general planning was by Gerald Jeffreys, engineer, and W. E. Beadle, master mechanic of the Thunder Bay mill. The installation is one of the few in Canada, and certainly the longest. The expenditure will amount to considerable.

Pulp Man Left Large Estate

The estate of the late Harry Judson Crowe, of Toronto, who was widely known in pulp and paper circles in Canada and Newfoundland, as well as being an outstanding capitalist and philanthropist, amounted to $821,744, and his philanthropic endeavors are carried on in his will, which has just been entered for probate. There are extensive bequests to charitable, social and educational institutions. His widow receives an annuity of $10,000 and a legacy. His only son, James Fitz-Randolph, receives a legacy of $100,000 and a share in the residue. There are a large number of legacies to relatives. Two thirds of the residue is left in equal proportions to the Salvation Army and as an endowment to establish scholarships in training schools for nurses. The estate includes pulp and timber holdings, life insurance of $141,900 and stocks and bonds amounting to $526,245.

Combating The Spruce Budworm

The Governments of Canada and Ontario and one of the large pulp and paper companies operating in Ontario will be associated this year in work that is being undertaken in the effort to find a weapon wherewith to resist the attacks of the spruce budworm upon forest trees. The work will be carried on with the aid of airplanes. These machines will be used to dust the trees in twelve ten-acre plots of trees near Westree, west of Sudbury, with calcium arsenate. The airplanes and their pilots will be supplied by the Canadian Air Force. Scientific investigators will be furnished by the entomological branch of the Dominion Department of agriculture, and assistance in the conduct of the experiments will be given by the Forestry Branch of the Ontario Department of Lands and Forests and by the Spanish River Pulp and Paper Mills Company.

The insect pest which is the object of the forthcoming air attacks is called the spruce budworm. Its name conveys the erroneous impression that it operates only on spruce trees. It is pointed out, however, that in reality the caterpillar preys primarily upon balsam, but it does spread to spruce, and it has destroyed in Canada a great deal of timber suitable for the manufacture of woodpulp and paper. Most of this timber was situated in the provinces of New Brunswick, Quebec and Ontario. The Royal Commission on Pulp Wood, which was appointed in the Summer of 1923, endeavored in its report to give some estimates that would indicate the extent of timber losses occasioned by the worm.

The Commission figured that in the period of ten years, when infestations were most severe, the average annual loss of pulpwood in New Brunswick, due to the insect, was at least one million cords. In Quebec, the Commission reported, the losses had been estimated at from 100 million to 150 million cords over the ten-year period. Taking the lower figure the budworm caused annual depletion at the rate of ten million cords, part of which was salvaged. In Ontario the losses in the ten years amounted to about five million cords, or about half a million cords a year.

During the ten years ended in 1924, the Royal Commission concluded, the damage wrought by the budworm in the balsam-spruce stand in Eastern Canada amounted probably to 150 million cords.

Another authority has estimated that the loss since 1909 through this cause has reached 200 million cords of pulpwood.

Pulp-Peeling Losses

J. B. Kemp, dealer in pulpwood and timber lands at Pembroke, Ont., recently inserted a rather interesting announcement in the local papers, which was headed "Regarding Cutting Pulpwood" and the article which was dedicated to the pulpwood farmer read as follows: "If you pay for peeling pulpwood by the pole you should inspect the work daily—otherwise 75 per cent of the work done will be faulty. The peeling and the trimming will be defective." In response to enquiry regarding the pronouncement Mr. Kemp says that it simply means that trimming should be done close to the body of the tree and all of the bark removed, otherwise when measured at the mills a reduction may be made for badly trimmed rough wood. If any bark is left on, the mills usually send a mill hand to complete the work, charging for his time against the wood. It is usual when a contractor has men peeling at so much a pole that they become careless in trimming the branches close and often leave bark on the underside. If the wood is not sawn up until the fall this bark freezes on and passes to the mills. The result is the owner is dissatisfied when he receives his measurements. It is to protect this that warning is given at this early date. Mr. Kemp, who explains that he refers to sap-peeled wood, adds: "Whatever I may have thought of rossing wood twenty years ago I do not favor it now principally on account of the loss of the wood and the too frequent moving of the rossing plant."

Paper Wholesalers Urge Tariff Change

Leo E. Charles, of the Victoria Paper and Twine Company, Toronto, and N. V. Morrison, of the W. J. Bell Paper Company, together with over a thousand representatives of other wholesale houses in Canada, composed a delegation which waited on the Dominion Government at Ottawa a few days ago in protest against the new ruling which has just been made regarding the Special War Revenue Act, which reads as follows: "Licenses are not to be granted to wholesalers, unless during their preceding business year their sales of raw materials for incorporation into licensed manufacturers' taxable products, amounted to at least seventy-five per cent of the total annual sales of the said wholesaler. Wholesalers who are now licensed, and whose business is such that they cannot qualify for license, will be required to take inventory of their goods on hand as at June 30, 1928, and price the said inventory at the cost price to them of Canadian goods, and at the duty paid value of imported goods, and compute the tax thereon at the existing rate. The amount so computed will be required to be paid by the wholesaler to the Collector of National Revenue at the Port where license was issued, in not more than six equal monthly instalments, the first of which is to be due and payable not later than July 31, 1928, and monthly thereafter."

Iroquois Mill to Run to Maximum

L. R. Wilson, Managing Director of the Abitibi Power and Paper Company, who was in Iroquois Falls, Ont., a few days ago, set at rest a number of false rumors which have been circulating regarding operations at the Iroquois Falls mill. Owing to unsatisfactory conditions in the news print industry, and the necessary curtailment in production, word had been passed around that the Abitibi mill at the Falls was going to shut down for an indefinite period. Mr. Wilson stated that while the company had been forced to restrict production in some of the other mills to meet market conditions, the policy was to shut down the higher cost mills and operate to full extent the lower cost ones, and under this arrangement it was the intention to keep the Iroquois Falls mill up to its maximum capacity continuously. The Iroquois Falls mill is classed as a low cost plant.

New Manager of Abitibi Paper Mills

The announcement has been officially made by L. R. Wilson, managing director of the Abitibi Power and Paper Company, that J. E. Patterson had been appointed manager of operations of all the paper mills in the enlarged Abitibi company. Mr. Patterson is one of the oldest employees of the concern. He went to Iroquois Falls on March 26, 1913, on the office staff, and when the mill commenced operation he organized the efficiency department. Later his hard work and energy were recognized by his being appointed general superintendent of the mill in January, 1922, and in August of 1926 his services were again recognized by promotion to manager of the mill.

News and Jottings of the Trade

The Ontario Paper Company was the successful bidder when the assets of the Franquelin Lumber and Pulpwood Company, of Saguenay County, Quebec, were offered for sale by legal auction at Osgoode Hall, Toronto. The Ontario Paper Company made a bid of $1,000,000, the only bid received; but it was $100,000 under the reserve set by Official Referee Charles Garrow, K.C. Curtis & Martin, for the paper company, raised the bid to the reserve price and the property was sold to them for $1,100,000.

Randolph Swail, formerly of Winnipeg, Man., has joined the sales staff of Paper Sales, Ltd., King street West, Toronto.

C. W. Illiff, of the John Dickenson Paper Company, London, England, called on the Toronto paper trade during the past few days.

William Aird, of the Howard Smith Paper Mills, Ltd., Montreal, has been appointed convenor of the special committee selected by the paper manufacturers, jobbers and printers to work out a scheme for the standardization of weights and sizes of papers manufactured in Canada. The committee will meet in Toronto on July 10 when it is expected that good progress will be made with the project.

C. W. Paull, sales manager of the United Paper Mills, Ltd., Spadina avenue, Toronto, sailed from Montreal on June 22 on a trip to England where he will visit his old home. He was accompanied by Mrs. Paull.

A. Freeman Ogle, who for the past five years has been a popular member of the sales staff of Paper Sales, Ltd., Toronto, has severed his connection with that organization, and is now representing Mead, Patton & Co., Ltd., agents for Fraser Co.'s wood pulp boards, with office at 3 Wellington street, Toronto.

S. C. Knode, vice-president of the Albemarle Paper Manufacturing Company, makers of blotting, at Richmond, Va., was a recent caller on the Toronto paper trade.

The United Paper Mills, Ltd., Toronto, have stocked a new and distinctive line of paper especially adapted for calendar, advertising and cover purposes, known as Saracen Leatherette and manufactured by the Beveridge Paper Company, Indianapolis. The Toronto firm have the exclusive Ontario agency for the paper.

Simplification of Shipping Tags

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 3, 1928.—Manufacturers of shipping tags held a preliminary conference at the Department of Commerce last week under the auspices of the Division of Simplified Practice, Bureau of Standards, and considered a report that had been compiled from a survey of variety among manufacturers.

This conference concluded that further study of all phases of the situation, as revealed by the report, would be necessary before tentative recommendation could be presented for final action. A committee was appointed to make this study, which will include nomenclature to clearly define stock, including thicknesses, sizes of tags and color of stock.

George Schuster, representing the Division of Simplified Practice, will assist this committee in making the study.

The personnel of the committee is as follows: O. L. Moore, chairman, Secretary, Tag Manufacturers' Association, Chicago; William R. Eastwood, The Reyburn Manufacturing Company, Philadelphia; E. B. Graupner, International Tag Company, Chicago; George M. Huey, Denney Tag Company, West Chester, Pa.; H. E. Reynolds, Dennison Manufacturing Company, Framingham, Mass.

Paper Trade Decidedly Quiet In Philadelphia

Falling Demand For Tonnage and Keen Competition For Orders Results In General Weakness of Local Market—Semi-Annual Offerings of Mill Holdovers Anticipated At Lower Quotations—Manufacturers Hold Off Paper Stock Purchasing Until Mid-July

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., July 2, 1928.—Drifting along in the early summer doldroms the Quaker City trade has become a matter of day to day purchases of small quantities to tide over immediate needs. There has been a tendency to let prices drift into lower levels with decided cuts on some grades that have been subjected to keen competitive bidding for sufficient tonnage to maintain summer-time schedule of operations at the mills. Local dealers who have been making a survey of present stocking find that some of the larger distributors are well stocked with various brands of a single grade, selling at the same price, and in order to move these slower selling brands will be obliged to mark them down for clearance purposes. This is particularly true of the fine paper lines where hand to mouth buying has been in order for many months.

Fine paper lists compiled by the larger paper dealers show that some houses carry as high as six or eight brands of bonds, ledgers, and other printing papers, all selling at the same price and of identical quality. As one prominent paper dealer stated, present day hand to mouth markets will not permit of profitable handling of so many brands and dealers must restrict their stocks to fewer makes to avoid losses incurred by carrying "dead stocks." It is these "dead stocks" that must be moved at reduced prices in the semi-annual clearances this month.

As the local trade is preparing for mid-year clearances, the mills are also looking forward to semi-annual offerings of hold overs that will be featured at lower quotations in order to clear out space for the newer Fall productions. Like the distributors, manufacturers are not prepared for an active July month. They have almost entirely disappeared from the buying side of the stock market and report to the wholesale stock dealers that they are holding off until mid July to place their orders pending some definite indication of the future of business.

Wholesale Paper Merchants Outing

On the spacious green of the Roxborough Country Club, just outside Philadelphia, the wholesale paper distributors joined in fellowship of sports and sociability of dining table last Wednesday. There were 25 representatives of the Philadelphia Wholesale Merchants Association at this outing. While the morning and afternoon were devoted to sporting contests and a matching of skill on the broad acres of the links abounding the club house, there was a short business session that followed the opening of the day's program, interrupted by luncheon served at noon.

This second annual gathering was made most enjoyable by the generous contributions of pastimes in the program arranged under direction of George K. Hooper, of the Hooper Paper and Twine Company, secretary of the organization. Following the luncheon, a putting contest was staged, the honors in this event being awarded to Frederick I. Brower, of the Philadelphia office of the Worténdyke Company, Richmond, Va., who won in a triple tie with Byron Clark, district manager for the American Manufacturing Company, producers of ropes and twines, and E. L. Richards, of the Buffalo Envelope Company. James Andrews, of the Schuylkill Paper Company, captured first honors in the quoit tournament in well matched skill with George K. Hooper, the latter being awarded a five gallon thermos flask. The skill of Mr. Andrews was acquired from long contact with quoit pitching in St. Petersburg, Fla., as a member of the leading quoit club in the southern city. In the 18 hole medal play golf contest of the afternoon, the low gross score was recorded by E. L. Richards, with a total of 81, the runner up being Mr. Brower, with a score of 85. The low net score award was captured by J. G. Birle, of the American Forest Products Company, whose net was 64. F. A. Selle, of the same firm, combating the bunkers and hazards gamely, finished up with 180 strokes. P. S. McCalla was strong on the iron shots but his putts were ineffective.

In the absence of President Howard Satterthwaite, of the firm of Satterthwaite-Cobaugh, the vice president, Joseph Wallman, of the Edwin T. Fitler Company, presided, and extended a greeting to the members and a welcome to the recently enrolled associates of the organization. A few words of cheerful portent were spoken to the assembled wholesale paper men by Mr. Hooper, as chairman of arrangements, during the luncheon hour.

W. Allen Lindsay Joins Tarentum Paper Co.

Announcement was made to the Quaker City distributors and former associates of W. Allen Lindsay, during the week, of his appointment to the duties of general manager of the Tarentum Paper Company Mills, at Tarentum, Pa., near Pittsburgh. The Tarentum mills produce a line of wrapping papers, krafts and rope papers. The newly appointed general manager is well known in the Philadelphia industry, having been linked with it in the manufacturing branch and distributive division as former associate of the Lindsay Paper Company and member of the firm operating the century old Keystone Paper Mills destroyed by fire a few years ago. He is a brother of David Lindsay, Jr., and Horace Lindsay, and son of David Lindsay, Sr., all connected with the Lindsay Paper Company and previous to the fire proprietors of the Keystone Mills. His long affiliation with the paper industry in all its branches gives him broad knowledge upon which to build for the expansion of the Tarentum mills products.

Cooper H. Prickitt Promoted

Cooper H. Prickitt, who has been associated with the William Mann Company for two score years or more, has been elected to the vice presidency of the firm, the election having taken place last week at the annual stockholders meeting. He will also serve as its treasurer. The newly elected executive joined the company in 1884. Other officers elected were: President, William Mann Prizer; secretary, Joseph S. Wilds, and assistant treasurers, M. Halsey Holmes and George G. Peterson. The following were elected to serve on the directorate: Agnew T. Dice, William Mann Prizer, Cooper H. Prickitt, J. Gowen Roper and John M. Morrissey. The Mann Company, nationally recognized as bank supply and manufacturing stationers, featuring contract orders of paper converted products for large corporations, recently disposed of its Lambertville, N. J., paper mills, formerly devoted to the manufacture of its own line of carbon, duplicating, and other grades of papers, among them the famous Shen King brand long used by the leading railroads and other transportation companies of the nation.

Paper Trade Golf Tournament

Philadelphia paper trade associates were well to the fore in the ranks of winners in the 12th Annual Golf Dinner Match staged in conjunction with the publishers, printers, and supply men on the links of the Merion Golf Club last Tuesday. There were 36 members of the trade affiliated with the golfing fraternity of the industry contesting for the various prizes, including the Philadel-

phia Paper Trades Golf Association Cup, which is held for the year by the winner of the low net score and held permanently where the cup is won three times successively. Those in the trade who were awarded the prizes were A. Richard Hartung, winning third in the Kicker Handicap play, and Harry Donahue, of the Molten Company, who was awarded first prize in the low net score after a tie score between himself and Winston Kindt, of the John C. Winston Company. Mr. Donahue came out victorious over the printer competitor when he was matched for the first prize play after the tie score had been announced. The first prize in the Kickers Handicap went to Albert Klopp, while the second trophy went to Aleck McKay. Winston Kindt was second winner in the low net score, while Fred Hastings, Philadelphia manager of the American Writing Paper Company, was recognized as the victor in the third low net score award. In the morning the golf matches were given over to team playing, the loser taking the duties of host to the members at the noontime luncheon. The cup play and low net score matches were staged for the afternoon. Those who served on the committee were Chairman A. B. Sherrill, Riegel & Co., Hal T. Sorensen, Irwin Megargee, Curtis & Bro., William Jennens and Charles L. Zink.

High Pressure Boilers in the Paper Industry

One of the principal topics of discussion at the annual sales meeting of the Edge Moor Iron Company, held recently at its plant near Wilmington, Del., centered around the increasing high pressures being adopted by various industries. In this connection, the Edge Moor Iron Company is now building two 650 lbs. pressure boilers of 1,174 boiler hp. each, for the Waldorf Paper Products Company, St. Paul, Minn. This is possibly the highest pressure ever used in the paper industry. The first boiler will be shipped in August and will be in operation before the end of the year.

Other companies in the paper industry to adopt higher pressure boilers are West Virginia Pulp and Paper Company, which operates Edge Moor boilers of 425 pounds pressure. Two boilers of 825 boiler hp. each were installed in 1927 and have been in operation just about a year. Two additional boilers of the same pressure and horsepower have been ordered from Edge Moor Iron Company and will be shipped in July of this year.

The Warren Manufacturing Company is another concern in the paper industry to install high pressure boilers. At its Milford, N. J., plant this company has installed one 512 hp. Edge Moor boiler built for a working pressure of 385 pounds.

Among other nationally known organizations to install high pressure boilers is the R. J. Reynolds Tobacco Company at Winston-Salem, N. C., who have installed two Edge Moor boilers of 385 pounds pressure, 665 hp. each. The C. H. Wheeler Manufacturing Company, of Philadelphia, sellers of condensing equipment, also operate a high pressure Edge Moor boiler of 265 boiler hp., operating at 425 pounds pressure.

With the exception of the 650 pounds pressure boilers for the West Virginia Pulp and Paper Company, all of the above high pressure boilers are of the Cross Drum Box Header type.

Parsons Paper Co. Gives Checks

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 3, 1928.—In observance of the 75th anniversary of the founding of the Parsons Paper Company more than 200 employees were presented Saturday with checks from the company, ranging from $25 to $75, according to length of service. A letter of appreciation of the cooperation given by the employees accompanied the checks. Employees who have been in the service of the company from one to five years received checks for $25, those whose services extended from five to 10 years got checks of $50, and all those who have worked 10 years or more received $75. The gifts came as a huge surprise, the action of the directors in voting the donations recently, being kept secret.

Canadian Paper Exports Increase

Canadian exports of pulp and paper in May, according to the report of the Canadian Pulp and Paper Association, were valued at $16,927,421, an increase of $4,526,952 over the total for the previous month and of $2,773,298 over the figures for May, 1927.

Wood pulp exports in May were valued at $3,808,825 and exports of paper at $13,118,596 as compared with $3,013,864 and $9,386,605, respectively, in April.

Quantities and values of the various grades of pulp and paper exported in May were as follows:

	May, 1928		May, 1927	
PULP:	Tons	$	Tons	$
Mechanical	16,112	430,354	20,777	609,258
Sulphite Bleached	17,829	1,309,134	17,262	1,394,825
Sulphite Unbleached	20,974	1,046,166	16,025	890,440
Sulphate	15,938	953,239	13,765	628,142
Screenings	3,284	69,932	1,221	23,558
	74,137	3,808,825	69,050	3,744,223
PAPER:				
News Print	194,298	12,543,471	149,925	9,858,854
Wrapping	1,439	154,839	735	83,826
Book (cwts.)	6,508	54,842	12,824	83,109
Writing (cwts.)	91	1,909	1,671	14,579
All Other	.....	363,535	.....	369,532
		13,118,596		10,409,900

For the first five months of the year the total value of Canadian exports of wood pulp and paper amounted to $78,602,014, as compared with $68,955,132 in the corresponding months of 1927, an increase for the current year of $9,646,882.

Wood pulp exports for the five months were valued at $18,400,070 and exports of paper at $60,201,944 as compared with $17,712,650 and $51,242,482, respectively, in the corresponding five months of 1927.

Quantities and values under the various classifications were as follows:

	5 months, 1928		5 months, 1927	
PULP:	Tons	$	Tons	$
Mechanical	70,497	1,903,667	76,879	2,194,991
Sulphite Bleached	101,541	7,621,130	93,110	7,330,182
Sulphite Unbleached	90,344	4,571,190	75,492	4,164,298
Sulphate	68,626	4,067,430	65,425	3,980,900
Screenings	11,804	236,653	*1,045	*42,279
	342,812	18,400,070	311,951	17,712,650
* Two months only.				
PAPER:				
News Print	891,349	57,574,213	741,404	48,591,529
Wrapping	7,105	775,741	6,660	756,061
Book (cwts.)	25,843	211,359	30,468	229,328
Writing (cwts.)	1,724	16,637	6,893	57,400
All Other	.....	1,623,994	.....	1,608,164
		60,201,944		51,242,482

Pulp wood exports for the five months amounted to 608,467 cords valued at $5,481,588 as compared with 678,693 cords valued at $6,341,457 in the corresponding months of 1927.

Wage Agreements Hang Fire

[FROM OUR REGULAR CORRESPONDENT]

ALBANY, N. Y., July 3, 1928.—It was learned here last week that two important papermaking concerns have failed to sign new wage and working agreements to date with the papermaking unions. One of these concerns is the Minnesota & Ontario Paper Company, of International Falls, Minn., and the Kenora Paper Mills, of Kenora, Ont. President William R. Smith, of the International Brotherhood of Papermakers, returning from a Western trip, admitted that new agreements were still hanging fire with these firms.

President Smith recently spent several days among the Maine mills addressing the annual meeting of the Maine Federation of Labor at Augusta and also meetings of papermaking unions in Millinocket, East Millinocket, and Howland. The Brotherhood president is also scheduled to attend the state convention of the Allied Printing Trades Council which will convene July 23 in Glens Falls. Matthew J. Burns, former secretary of the Brotherhood, who was an unsuccessful candidate for the presidency at the last election, is now doing organization work in the Holyoke, Mass., district and according to reports coming to headquarters in this city he is meeting with considerable success.

Chippewa Falls Hydro-Electric Plant Completed

Four Units Now Supplying 22,000 h.p. to Northern States Power Co.—Two More Generators Will Be Placed in Operation Shortly—Wisconsin Industrial Commission Investigating Problems and Effects of "Rest Law" in Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., July 2, 1928.—Completion of the Chippewa Falls plant of the Northern States Power Company was accomplished last week, and four of the units are now supplying 20,000 h.p. to the utility. The other two generators will be placed in operation within a short time, giving the power company a total of 30,000 h. p. Most of this power will go to cities northwest of Chippewa Falls, Wisconsin.

The new power house at this site is 57 by 318 feet in size, and the dam, located on the Chippewa river, is 1,030 feet long. This plant is part of a power combination of the Northern States Company which produces a total of 100,000 h.p. One unit built recently at Wissota, near the city, furnishes 40,000 h.p., and another at Jim Falls, ten miles distant, provides 20,000 h.p. These are tied in with other hydro-electric plants inter-allied with this company.

Rest Law Investigation

An investigation of the problems and effects of the "rest law" in the paper industry is being made at the present time. The first checkup was made at a meeting several days ago at Wisconsin Rapids, Wis. An advisory board has been organized by the Wisconsin Industrial Commission, consisting of representatives of the employers and the employees. Walter Mead of the Consolidated Water Power and Paper Company, of Wisconsin Rapids, was elected chairman, and S. F. Shattuck, of the Kimberly-Clark Company, Neenah, Wis., was chosen secretary.

This "one day of rest in seven" law was passed by the Wisconsin legislature in 1925 but was not enforced until last year, with some modifications from the original plan. The law has worked smoothly in some of the mills, but a survey is to be made to find whether any remedies are needed.

Other members of the advisory board in addition to the above are: D. C. Everest, of the Marathon Paper Mills Company; W. J. Peacock, of the Northern Paper Mills; Franz Rosebush, of the Nekoosa-Edwards Paper Company; J. H. Miller, of the Whiting-Plover Paper Company, and W. F. Ashe, of the Thilmany Pulp and Paper Company. Labor representatives are Raymond, W. J. Bell, Dan Hobbs, and Charles McLean, all of the Consolidated company, and Rasmus Anderson, president of the Pulp Workers Union. Fred M. Wilcox and O. A. Fried represented the industrial commission.

Aldo Leopold Resigns

Announcement is made of the resignation of Aldo Leopold, associate director of the United States Forest Products Laboratory at Madison, Wis. He leaves his work July 1 to become a consulting forester, privately engaged, specializing in game management. His first undertaking will be an assignment from the Sporting Arms and Ammunition Manufacturers Institute to make a survey of American game resources. Mr. Leopold has been prominent in forestry work ever since his graduation nineteen years ago from the Yale Forestry school. He has been at the laboratory since 1924, and achieved a successful program of correlation of forest products research with forest management.

New Forestry Plans

Two paper mills are listed among the sixty-six corporations and individuals applying to the Wisconsin Conservation Commission to convert cutover lands into timber growing areas under the new state forestry law. The total acreage under the applications is 172,975 acres, a big step towards insuring a future timber supply under the plan of tax freedom until the timber is cut. The Nekoosa-Edwards Paper Company aims to plant 1,000 acres in Wood county, and 29,000 acres in Ashland county. The Tomahawk Kraft Paper Company is setting aside 1,360 acres in Lincoln county. Most of the other timber growing areas are those of lumber companies, several of whom have interests in paper mills.

John Strange Estate Settlement

Final settlement has been made to heirs of the estate of John Strange, deceased founder of the John Strange Paper Company, of Menasha, Wis. The capital stocks and other personal property amounted to $218,663, and the real estate owned by the manufacturer is additional. Mr. Strange left $25,000 for diverse charities. Principal heirs are the widow, Mrs. Mary M. Strange, the sons, Hugh M. and John Paul Strange, and the daughters, Mrs. Katherine Athearn and Mrs. Ethel McLaughlin.

Pouring Concrete on Fox River Dam

Concrete is being poured for the first section of the new dam supplying water power to the paper mills on the Fox River at DePere, Wis. One section of the old dam has been removed, and about half of it will be out by next week. It is expected that the work will be completed by the end of this year.

Fox River Paper Co. Builds Boiler Room

Construction of a new boiler room at a cost of $30,000 has been started by the Fox River Paper Company, of Appleton, Wis. The foundations are in and work soon will be started on the superstructure. A high brick smoke stack also is being built, and is now up fifty feet.

News of the Industry

George Brabender, of Peshtigo, Wis., has accepted an appointment as research engineer for the Northwest Paper Company, of Cloquet, Minn. He recently completed a fellowship in the University of Wisconsin where he conducted research work in the pulp and paper industry.

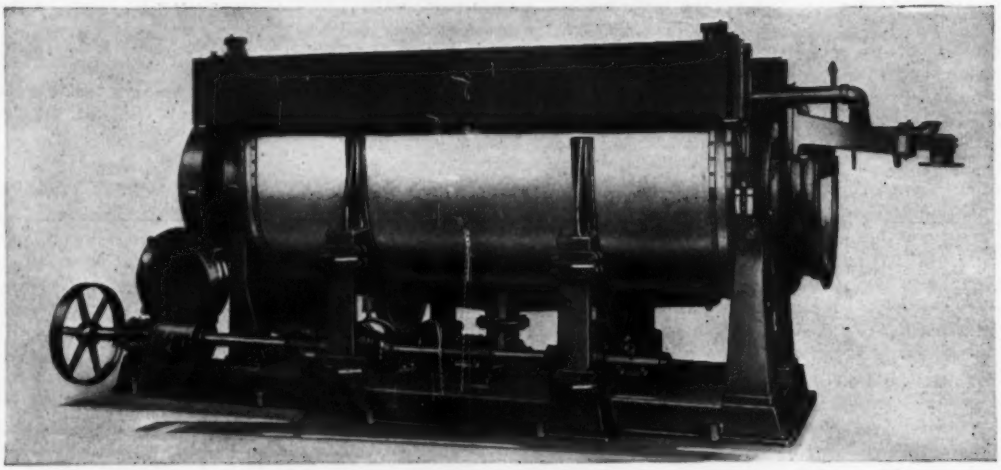
Announcement is made of the marriage of Frank A. Janson, of Oconto Falls, Wis., and Miss Mabel Giese, of Gardner, Wis. Mr. Jason will locate at Wellsburg, W. Va., where he will serve as construction engineer for the Continental Paper and Bag Corporation. He held a similar position with the company at Oconto Falls, and previous to that time was in the engineering department of the Marinette and Menominee Paper Company, at Marinette, Wis.

Paper mill folk are receiving quite a "kick" out of the discovery of 85 cases of Scotch Canadian whisky concealed in a carload of pulpwood consigned to Green Bay, Wis. The liquor was seized by customs officials. It is believed the shipment was concealed in the car after it had left the Soo Pulp and Paper Company, and was found at Sault Ste. Marie.

Work has been started by the Wisconsin Power and Light Company on a new power house and dam at Necedah, Wis., on the Yellow River. M. L. Webber of Madison, Wis., has been awarded the contract. This plant will supply power to an area in southwestern Wisconsin.

Frequent rains have hindered construction work on the new finishing room at the main mill of the Consolidated Water Power and Paper Company, at Wisconsin Rapids, Wis. Excavation has finally been completed, however, and concrete will be poured for the foundations. It is expected that the work will move much more rapidly from now on.

BIRD MACHINERY



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The BIRD SCREEN

BIRD MACHINE COMPANY, South Walpole, Mass.

Demand for Paper Seasonally Dull in Boston

Mid-Year Inventories and Summer Vacations Responsible for Most of the Prevailing Slackness —While Conditions in Paper Board Market Are Quiet at Present, General Improvement Is Anticipated in Near Future—Prices Remain Steady

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 2, 1928.—The usual dullness of this period of the year prevails in the wholesale paper market. A number of concerns are taking their mid-year inventories, and in some instances vacations account for the slackness. Some of the textile mills which use heavy fiber paper are giving their employees vacations beginning June 28 and lasting ten days instead of the customary time about Labor Day. Prices, however, have continued on the same plane and no change is expected immediately. If there is any, it will probably take place this month.

Somewhat varying reports are heard from the box board trade. Although the market is generally quiet now, there is a rather general feeling that there will be an improvement through the last half of the year. The Boston office of the United Paper Board Company, 683 Atlantic avenue, reports a good business.

Old papers are rather quiet, although quotations are unaltered on most grades. No. 1 books, heavy, are somewhat easier, and selling at 1.75 compared with a previous figure at 2.00. When the Swedish pulp makers went on strike with a consequent lessening of the product of the mills in Sweden, paper manufacturers here were obliged to turn to domestic book and magazine material, but now that the labor troubles have been settled, with the foreign pulp available, the demand for the domestic stock has diminished, with a consequent return to the former basis.

In bagging, foreign manila rope shows a slight decline, and is now quotable at 3.00 to 3.25, compared with a former range of 3.00 to 3.50. New and old domestic rags are in about the same position. Foreign roofing rags are in fair demand, with prices showing an upward tendency. Dark cottons continue strong at 1.60 to 1.65. Shirt cuttings are somewhat easier.

News of the Trade

Frank Floyd, secretary of the National Paper Trade Association, is expected as guest at a luncheon meeting of the Fine Paper Division of the New England Paper Merchants Association to be held at the Boston Chamber of Commerce July 11. Mr. Floyd will address the meeting on the work of the National Association.

At the recent mill and merchants meeting of the Strathmore Paper Company at Woronoco, Mass., copies of a manual were distributed containing sales helps and ideas for selling high grade papers, which, moved even in small units, pay the merchants profit. A portfolio, "The Pioneer Help for Salesmen," bound, showing all the Strathmore lines was put in the hands of the salesmen. One of its features is that each sample gives the color, finish, size, and weights at which it can be procured and the length of the mill rolls. Swatches of paper are attached to leaves in the back of the book. Carter, Rice & Co. Corporation, 246 Devonshire street, are among the distributors of the Strathmore lines.

The United Paper Board Company is making arrangements to resume operations at the Benton Falls (Me.) Mill, about the middle of this month, and manufacture light and heavy weights of chip and news board. This mill has been shut down for repairs for some time.

The Cape Cod Chamber of Commerce, in advertising the general attractions of the Cape, has issued 50,000 folders, on which is reproduced the unique map of Cape Cod, shown on the 1928 calendar of Arthur E. Ham & Sons, previously described in these columns, and credit given for the use of the map.

F. V. Carmer, vice-president of Poinier & Carmer Company, box board dealers, 683 Atlantic avenue, has gone to Ayer's Cliff, near Sherbrooke, Canada, for a vacation.

J. C. De Coster, of the American Writing Paper Company, called on the trade last week.

The Korola Company, Hingham, Mass., has been incorporated with a capital of $99,990 to manufacture paper cups and other containers. The incorporators are William L. Hall, Augustus S. Nye, both of Brookline, Mass., and Theodore M. Prudden, of Hingham.

Recent Decisions on Paper Imports

The United States Court of Customs Appeals has refused to grant a remission of additional duties imposed in lieu of penalty for undervaluation on a shipment of German wrapping paper. The paper was sold at $4.25 per 100 pounds, but the invoice stated the home market value of the paper to be 46.05 gold marks per 100 kilos, ($4.98 per 100 pounds) and the paper was held dutiable at the latter rate, being higher than the actual sale price. The importer asked remission of additional duties, claiming there was no intent to defraud the revenue of the United States. The Court of Appeals sustains the decision of the lower court that the importer did not discharge the burden resting upon it of establishing good faith and honesty of purpose. The lower court pointed out that there was no explanation of the fact that the invoice price was 30 percent below the home market value as stated on the invoice itself. The higher court approves the comment of the lower court that the failure to note the lower home market price was "rather remarkable." This was one of the many cases in which the Import Committee of the American Paper Industry gave valuable assistance to the Government.

The Treasury Department has revoked a ruling by which drawback will be allowed to an important New York magazine publishing company on plain white and plain manila envelopes imported to be addressed in this country. The original ruling allowed this company to import envelopes, address them in this country, and then secure a drawback of the duty paid upon re-exportation of the addressed envelopes. The Department now holds that such addressing is not a process of manufacture which would permit the granting of the drawback under the Tariff laws. The publishing company will therefore either have to pay duty on these envelopes, or make its envelope purchases of domestic mills.

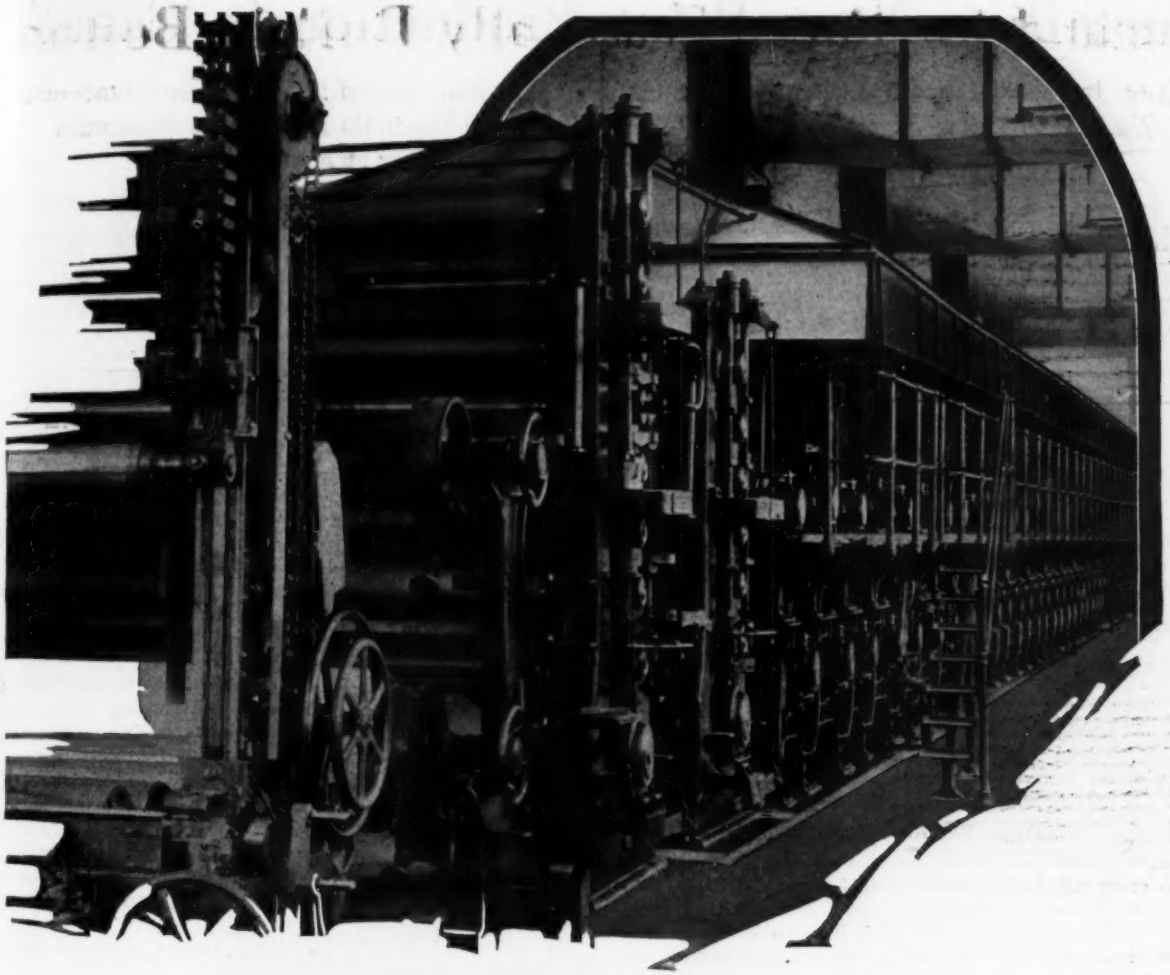
Shipping Pulp and Paper Over Champlain Canal

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., July 3, 1928.—The barge canal terminals in this village present a busy aspect since the opening of navigation on the Champlain Canal and it is said that the shipments already handled give indications of a record season. The increased activity at the terminals is due almost entirely to the increase in pulp and paper shipments. The International Paper Company, the Union Bag and Paper Corp., and Finch, Pruyn & Co., are among the heaviest shippers.

At the upper terminal most of the shipments of the International Paper Company are handled, this terminal being closest to the I. P. local plant. The I. P. Company has a fleet of barges making regular trips between Fort Edward and New York bringing in pulp and other raw products and taking out the finished paper.

At the lower Broadway terminal early this week, Finch, Pruyn & Co. were loading a large barge of news print while at the same time a shipment of wood pulp for the Union Bag and Paper Corporation was being unloaded and trucked to Hudson Falls. Finch, Pruyn & Co. also utilizes motor trucks in bringing the news print from the Glens Falls mill to the Fort Edward terminal.



Quality Board Produced at High Speed

THERE is as much manufacturing difference between high and low test board as there is between book and news. A fourdrinier running at high speed on quality book paper is slow when compared to a modern news machine. Speeds and productions of board machines cannot be justly compared unless the quality of both finished products is the same.

The illustration shows the Finishing End of one of the latest Downingtown Board Machines. This Cylinder Machine embodies our latest developments for assurance of consistent high speed and high production even on high test board.

Downingtown Machines (Cylinder and Fourdrinier) are built for ease of operation, low power requirements, freedom from breakdowns and long service life. Get our bid.

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Curtailing News Print Production in Canada

Abitibi Power & Paper Co. Closes Down Another Machine At Sault Ste. Marie Plant—Port Arthur Mill Closed and Output at Sturgeon Falls and Espanola Reduced to Minimum —Spruce Falls Pulp & Power Co. Begins Operations at Kapuskasing

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., July 2, 1928.—While a good deal of negotiation is said to be going on with a view to stabilizing news print prices, no actual developments are reported. Interest for the moment is centered in a discussion regarding the recent visits to Europe of A. R. Graustein, president of the International Paper Company, George Chahoon, president of the Laurentide Company, and other news print executives. It was thought that they were trying to arrange price-fixing for news print on an international scale but this is denied. It is admitted, however, that there was a proposal to eliminate the economic waste of shipping news print back and forth across the Atlantic, but nothing came of this, the only result being the formation of an international statistical service.

The policy of curtailing production has found further expression this week in the announcement that the Abitibi Power and Paper Company is closing down another machine in its Sault mill, leaving two out of the four in operation. Already the Company has closed the Port Arthur mill and placed the output at Sturgeon Falls and Espanola at a minimum amount. Apparently also the company is holding up the development of the Murray Bay Paper Company. The cost of installing machinery there for a mill which is to have a capacity of 125 tons of news print per day has been considerably lessened by an agreement entered into with the Ste. Anne Paper Company, another Abitibi subsidiary, to provide sulphite pulp for Murray Bay.

Manager For All Abitibi Mills

J. E. Patterson has been appointed manager of operations of all the paper mills in the enlarged Abitibi Power and Paper Company. Mr. Patterson is one of the oldest employees of the company. He went to the mill at Iroquois Falls on March 26, 1913, on the office staff, and when the mill commenced operation, organized the efficiency department.

Later his hard work, energy and ability were recognized by his being appointed general superintendent of the mill in January, 1922, and in August of 1926, his services were again recognized by promotion to manager of the mill. Now he has mounted another rung of the ladder by the present appointment.

"This steady promotion was not luck," says the *Broke Hustler*, the local paper published by the Abitibi Company, "but was earned by the hardest kind of work. Many and many a night, during the years when he held a junior position, he spent in the mill when he would much rather have been enjoying himself as a good many others were."

Production Starts At Spruce Falls

Initial production has been started by the Spruce Falls Pulp and Paper Company at Kapuskasing, Ont., the first shipment of news print having been made during the past week. This mill has been built by the *New York Times* and the Kimberly-Clark Company, the total investment in the enterprise being around $37,000,000. The capacity of the mill will be 170,000 tons per annum, and it is expected that this capacity will be reached during the present year. Most of the news print will be used in the production of the *New York Times*.

Big Extensions by Shawinigan Co.

At a meeting in Montreal during the week, shareholders of the Shawinigan Water and Power Company gave their sanction to a further large increase in the capital stock of the company to 2,600,000 shares of no par value. Julian C. Smith, the president, announced that preliminary survey work had already begun on the three power sites on the St. Maurice River recently acquired from the Provincial Government. It is believed that these will give 600,000 hp. within the 76 miles of the river covered by the concession, so that the company will have power resources on the river aggregating 1,300,000 hp., and development is not complicated either by navigation problems or constitutional differences between federal and provincial governments. Another development anticipated as a result of the authorized increase in capital is that the company will purchase the Laurentide Power Company from the Canada Power and Paper Company.

Portland Man Backs Concerns

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., June 28, 1928.—A former wellknown business man of Portland, Douglas Ball, has organized and is president of a new $5,000,000 financial concern in Seattle, to be known as the National Discount Corporation. To be of financial assistance to Pacific Northwest industries is the primary purpose of the institution.

The chief business of the new company will be the lending of capital to existing business and manufacturing plants, the handling of trade acceptance and warehouse receipts, and acting as a discount center. A large number of Northwest business men will be associated with Ball on the board of governors of the concern.

Mr. Ball organized and was the manager of the Inland Paper Co., in Walla Walla about 16 years ago. He left Portland about 1912. After leaving Walla Walla, Mr. Ball organized and conducted successfully here for a number of years the Oregon-Washington Paper company.

He sold this business to and later became associated with, the Zellerbach Paper company, as manager of its Seattle branch. Mr. Ball later organized the Federal Ink company and was one of the organizers of the large paper mill at Port Angeles, Wash., which was later taken over by Zellerbach.

Introduces Riegel's Leatherette Cover

The Warren Manufacturing Company, 342 Madison avenue, New York, writes: "You will probably be interested to hear that we have decided to enter the cover paper field with the manufacture of our new line—Riegel's Leatherette Cover.

"This cover is unusual for several reasons, namely: Strength and folding qualities, a leather embossed surface that is actually easy to print, a selection of nine bright modern colors not found in most leather embossed covers and—a price that is far below all other embossed cover papers.

"The line will be sold only through authorized distributors, most of whom have already put the line in stock, although there are still territories open in vicinities where we have not had regular distribution before.

"We plan an extensive advertising campaign, most of the printing of which will be done by the DeVinne-Hallenbeck Press in New York. This campaign will consist of a series of folders and printed specimens that will be mailed to all of the larger printers in the U. S. and Canada and all of the larger manufacturers and advertisers in this country.

"The line has been shown to printers in New York, Philadelphia, Boston and Chicago and has been given a very gratifying reception."

IT STANDS UP

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Ordway Paper Company
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Asheville, N. C.
Southern Paper Products Co.
Atlanta, Ga.
American Mills Company
Baltimore, Md.
Dobler & Mudge
Birmingham, Ala.
City Paper Company
Boston, Mass.
Whitney Brothers, Inc.
Fort Hill Paper Company
Brooklyn, N. Y.
A. E. Mac Adam & Co., Inc.
Buffalo, N. Y.
Mugler & Umlauf
Charlotte, N. C.
Charlotte Paper Company
Cincinnati, Ohio
Merchants Paper Company
Columbia, S. C.
American Mills Company
Dallas, Texas
Texas Paper Co.
Dayton, Ohio
Buyer's Paper Company
Greensboro, N. C.
Old North State Paper Co.
Hagerstown, Md.
The Antietam Paper Company
Indianapolis, Ind.
Ostermeyer Paper Co.
Jersey City, N. J.
S. Sadler, Inc.
Lancaster, Pa.
United Twine & Paper Co.
Little Rock, Ark.
Parlette Brothers, Inc.
Los Angeles, Cal.
Johnson, Carvell & Murphy
Louisville, Ky.
Miller Paper Company
Marion, Ind.
Osborn Paper Company
Memphis, Tenn.
Memphis Paper Company
Newark, N. J.
C. G. Winans Company
New York, N. Y.
Trinity Bag & Paper Co.
Paterson, N. J.
Ribbon & Ticker Paper Co.
Philadelphia, Pa.
Garrett-Buchanan Company
Mather Paper Co., Inc.
E. Latimer, Jr.
Providence, R. I.
R. L. Greene Paper Co.
Rochester, N. Y.
Cramer-Force Company, Inc.
St. Joseph, Mo.
Sheridan-Clayton Paper Co.
St. Louis, Mo.
Orchard Paper Company
San Francisco, Cal.
Johnson Locke Mercantile Co.
Seattle, Wash.
Johnson-Lieber Company
Springfield, Mass.
H. W. Carter Paper Co.
Tampa, Fla.
Peninsular Paper Company
Trenton, N. J.
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Main Sales Office: 100 East 42nd Street, New York City

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"WRAP IT IN GATOR-HIDE"

INTERNATIONAL CO. TO RECAST CAPITAL STRUCTURE

(*Continued from page 25*)

pany has for many years owned extensive water powers in the Hudson River Valley. One of these, the Sherman Island plant, was developed in 1923 to a capacity of 44,000 h.p. The Sacandaga Storage Reservoir is now being constructed under State authority to regulate the flow of the Hudson River. When completed this storage will give the Sherman Island plant and the Company's other power sites on the Hudson at Palmer Falls, Glens Falls, and Fort Edward a potential capacity estimated at 300,000 h.p. Heretofore there has been no market available for this power beyond the requirements of the company's mills, except through distributing companies which exist in the immediate vicinity. The acquisition of control of New England Power Association with its widespread network of transmission lines extending throughout Southern New England will assure the company an additional outlet for the power which will be available from these plants.

Upon the consummation of the plan and the subsequent acquisition of shares in the New England Power Association, the new company will control water powers in the United States, Canada and Newfoundland, developed or under construction, having a capacity of 1,480,000 h.p., which are capable of being increased through further development and through utilization of undeveloped sites to over 2,600,000 h.p. The magnitude of these holdings may be realized when it is considered that the developed horse-power on the Canadian side of Niagara Falls is about 900,000 h.p. and on the American side approximately 573,000 h.p., and that the Duke-Price project on the Saguenay River has a developed capacity of 450,000 h.p., the Conowingo project 300,000 h.p. and Muscle Shoals 260,000 h.p.

Preferred Stock Benefits

Under the plan, holders of 7 per cent preferred stock of the new company will have the same preferences as are now held by International Paper Company preferred stockholders. The new stock is a 7 per cent cumulative preferred with the same preference as to assets as the present 7 per cent preferred of International Paper Company. The new stock will have full voting powers. In addition to the benefits accruing to the stock by reason of the advantages to the new company explained above, the holder of the 7 per cent preferred stock of the new company will have another valuable privilege in the opportunity given him to share in the company's future prosperity through the conversion of his preferred stock into common stock of the new company. The details of these conversions privileges are as follows:—

The right of conversion is exercisable by the first $50,000,000 par value of the 7 per cent preferred stock presented for conversion, less amounts redeemed. These rights expire December 31, 1932. The basis of the conversion is par for the preferred stock and following prices for the Class A common stock: First $10,000,000 of preferred converted or redeemed $50 a share; second $10,000,000 of preferred converted or redeemed $52.50 a share; third $10,000,000 of preferred converted or redeemed $55 a share; fourth $10,000,000 of preferred converted or redeemed $57.50 a share; fifth $10,000,000 of preferred converted or redeemed $60 a share.

The 6 per cent preferred stock of the new company, to be received in exchange share for share for the 6 per cent preferred stock of International Paper Company, carries the same cumulative dividend rate of 6 per cent per annum preferred over dividends on the common stocks, is redeemable at 100 and accrued dividends and is entitled to vote. On liquidation or termination each share is entitled to an amount equal to the sum of the amounts distributable on each share of Class A common stock, each share of Class B common stock and each share of Class C common stock.

Common Stock Privileges

The common stock of the new company is divided for the time being into three classes, designated as Classes A, B and C, respectively, and one share of each class, a total of three shares, will be received in exchange for each share of the common stock of International Paper Company. The stock of each class is entitled to vote. Class A common stock is entitled to aggregate dividends of $12 a share before Class B common stock receives dividends. Then Class A and B common stocks will constitute one class which will be entitled to further aggregate dividends of $12 a share before Class C common stock receives dividends and thereafter the separate classes of stock will disappear and all shares originally constituting Classes A, B and C will be simply shares of common stock.

For instance, if the present rate of dividend of $2.40 a year is continued unchanged on the Class A common stock, it will take five years for the aggregate preference of $12 on the Class A common stock to be exhausted and at the end of that time the Class A common stock and the Class B common stock will be one class. If on this combined class the same dividend rate is continued unchanged for a further period of five years, at the end of that time the $12 aggregate preference of the combined class will be exhausted and all classes will rank alike for dividends, and the division of the common stock into classes will have disappeared.

Through the contemplated acquisition of the control of the New England Power Association and its associated interests, the holders of common stock of the new company will have a share in the entire equity of these large utility properties, whereas at present the current return available for the common stock of International Paper Company from this source is limited solely to such dividends as may be received upon the minority interest in New England Power Association which the company now owns.

In addition to this increased equity in power and utility properties, holders of the common stock of the new company will benefit through the more satisfactory medium which the new company will have for the financing of its future developments. The Company has at the present time a substantial investment in assets which are not as yet showing a return and it may find it important to increase this investment in such assets or in assets which for the time being earn less than their full carrying charges. The existence of classes of stock designed to forego dividend return for a limited period but retaining their full share in the equity of the new company and its future prospects is expected to provide a means of financing such future acquisitions and developments which will materially benefit the position of the company and its stockholders.

Provisions of Declaration of Trust

The declaration of trust provides for a Board of Directors in which the management of the company's affairs is vested. Subsequent selection of Directors and any change of Trustees under the Declaration of Trust rest with the shareholders. As regards election of officers, conduct of business and responsibility of management to shareholders, the voluntary association form is similar to that of a corporation. The Declaration of Trust provides that shareholders, directors, officers and trustees shall be exempt from personal liability and obligations incurred by the new company shall be enforceable against the trust estate only.

The consummation of the plan is independent of the acquisition by the new company of shares of New England Power Association from the New England Hydro-Electric Company or from the International Paper Company. While it is expected that both of such acquisitions will follow, neither acquisition is a condition of the plan itself.

Method of Exchange

The Board of Directors have recommended that stockholders deposit their stock under this plan. The stock should be deposited with one of the depositories, endorsed for transfer or accompanied by an assignment duly executed and also by the proxy

FINLAND

Chemical Wood Pulp for Export

550,000 Tons Yearly

Monthly Shipments During the Entire Year

Lagerloef Trading Company, Inc.

52 Vanderbilt Avenue, New York City

Annual Ross 19

Another Honor Roll That Might Easily Be Taken For The "Who's Who" In The Paper Industry—

Showing the concerns that are now using or will be using ROSS Heating, Ventilating, Drying Equipment this year—

This List Does Not Include The Scores of Prominent Users in Canada

G. A. Akerman Paper Mills.
Acme Paper Co.
Adams Bag Co.
Albemarle Paper Mfg. Co.
Algonquin Paper Co.
Allied Paper Mills.
Alton Box Board & Paper Co.
American Coating Mills.
American Locomotive Co.
American Photo Chemical Co.
American Tissue Mills.
American Writing Paper Co.
O. B. Andrews Co.
Ansco Co.
A. P. W. Paper Co.
Appleton Coated Paper Co.
Arkell Safety Bag Co.
Ashuelot Paper Co.
Atlantic Gelatine Co.
Atlas Wall Paper Co.

Baeder Adamson Co.
Bagley & Sewell.
C. T. Brainbridge's Sons.
Bakelite Corp.
Ball Brothers.
Barber Asphalt Co.
Barnes Wall Paper Co.
Bastrop Pulp & Paper Co.
Beckwith Mfg. Co.
Beechnut Packing Co.
Becker, Smith & Page.
Bogota Paper & Board Co.
Beloit Boxboard Co.
Beloit Iron Works.
Berkshire Coated Paper Co.
Beverly Wall Paper Co.
Bird & Son.
Bloomer Brothers.
Bogalusa Paper Co.
The Borden Co.
Henry Bosch Co.
J. T. Boyle Paper Co.
L. L. Brown Paper Co.
Brown Co.
Brown Paper Mill Co.
Brunsene Co.
Bulkley, Dunton & Co.
Byron Weston Co.

Calcasieu Sulphate Paper Co.
Campbell Wall Paper Co.
Cantine, Martin Co.
Certain-teed Products.
Central Paper Co.
Champion Coated Paper Co.
Champion International Co.
Chandler Mfg. Co.
Chemical Paper Mfg. Co.
Cherry River Paper Co.
Chesapeake Paper Board Co.
Chicago Card Board Co.
Chicago Coated Board Co.
Chicago Varnish Tile Co.
Chillicothe Paper Co.
Cincinnati Paper Board Co.
Clifton Paper Mills.
Colin Gardner Paper Co.
Combined Locks Paper Co.
Consolidated Water Power & Paper Co.
Consumers Boxboard & Paper Co.
Continental Paper Co.
Continental Paper & Bag Mills.
C. J. Cox Engineering Co.
Crawford-Austin Co.
Crocker Burbank Co.
Crocker-McElwain Co.
Cushnoc Paper Co.

Thomas Dalby Co.
The Davy Co.
Davis Paper Co.
Deerfield Valley Paper Co.

Defender Photo Supply Co.
Defiance Paper Co.
DeGrasse Paper Co.
Dells Paper & Pulp Co.
Dennison Mfg. Co.
Denson Carton Co.
Detroit Sulphite P & P Co.
Ditto Inc.
Dorr Woolen Co.
Dunn Sulphite Paper Co.

Eastern Mfg. Co.
Eastman Kodak Co.
The Eddy Paper Corp.
A. W. Elson Co.
Emerson Carey Fibre Products.
Endicott Johnson Corp.
Erving Paper Mills.
Escanaba Paper Co.
Esleeck Mfg. Co.
Eureka Specialty Printing Co.
Eureka Blank Book Co.
Everett Pulp & Paper Co.
E-Z Opener Bag Co.

Fairfield Paper Co.
Falulah Paper Co.
Federal Paper Board Co.
Fibre Products Co.
Fillmore & Slade.
Finch Pruyn Co.
Flintkote Co.
Forbes Lithograph Co.
Fort Orange Paper Co.
Foster Box Board Co.
Fox Paper Co.
Fox River Paper Co.
Franklin Board & Paper Co.
Franklin Coated Paper Co.
Fraser Paper Limited.

Robert Gair Co.
Gardner Harvey Co.
Gilbert Paper Co.
P. H. Glatfelter Co.
James E. Gledhill & Sons, Inc.
Gould Paper Co.
Great Northern Paper Co.
Great Western Paper Co.
Robert Griffin Co.

Haloid Co.
Hammond Bag & Paper Co.
Harrisville Paper Co.
Hawthorne Paper Co.
Hinde & Dauch.
Hoboken Paper Mills Co.
Hollingsworth & Vose.
Hollingsworth & Whitney Co.
Holyoke Card & Paper Co.
Hummel Downing Co.
Hydroloid Inc.

Illinois Powder Mfg. Co.
Illinois Varnish Tile Co.
Imperial Wall Paper Co.
Imperial Color Works.
Inland Paperboard Co.
International Paper Co.

Janeway & Carpender Co.
The Jennison Co.
Jessup & Moore Paper Co.
Joliet Wall Paper Co.

Kalamazoo Vegetable Parchment Co.
Kellogg Box Board Co.
Keyes Fibre Co.
Kieckhefer Container Co.
Kimberly Clark Co.
Korn Leather Co.
E. M. Kratz.
Kupfer Brothers.

J. O. ROSS ENGINEERING CORPORATION

CHICAGO. PORTLAND, ORE.
NEW YORK

Roll Call

28

The Lang Co.
Lawless Bros. Paper Mills.
Lawrence Paper Mfg. Co.
Lee Paper Co.
Liberty Paper Board Co.
Liberty Paper Co.
Lockwood Bracket Co.
Lowe Paper Co.
Lowell Bleachery.

McAndrews & Forbes Co.
Wm. P. McDonald Construction Co.
McEwan Brothers.
R. B. McEwan.
McLaurin Jones Co.
Manchester Board & Paper Co. Inc.
John A. Manning Paper Co.
Manning Abrasive Co.
Marathon Paper Mills Co.
Marinette & Menominee Paper Co.
Marvellum Co.
Mead Fibre Co.
Mead Pulp & Paper Co.
Merrimac Paper Co.
Miami Valley Paper Co.
Mid States Gummed Paper Co.
Midvale Paper Board Co.
Midwest Wall Paper Co.
Milford Spinning Co.
Minnesota & Ontario Paper Co.
Mitsui & Co.
Monadnock Paper Mills.
Monarch Paper Co.
Monroe Board & Lining Co.
Montgomery Washburn Co.
Moore & Thompson.
Mosinee Sulphate Fibre Co.
Mountain Mills Paper Co.
Meyer & Pratt Inc.

Nashua Gummed & Coated Paper Co.
National Biscuit Co.
National Cellulose Co.
National Folding Box Co.
National Fibre Textile Co.
National Paper Products Co.
National Vulcanized Fibre Co.
Nekoosa-Edwards Paper Co.
New Castle Paper Products Co.
New England Drawn Steel Co.
New Haven Pulp & Board Co.
N. Y. & Penn Co.

Ogdensburg Paper Mills.
Ohio Boxboard Co.
Oregon Pulp & Paper Co.
Orenda Corp.
Oswegatchie Paper Co.
Oswego Board Corp.
Oswego Falls Corp.
Oxford Paper Co.

Paraffine Companies.
Parsons Paper Co.
Patterson Parchment Paper Co.
A. W. Paul.
Penn. Fibre Board.
Penobscot Chemical Fibre Co.
Perserverance Paper Mills Inc.
Postigo Paper Co.
Philadelphia Fibre Co.
A. Pirie & Sons Ltd.
Plattsburg Wall Paper Co.
Poland Paper Co.
Prager Paper Co. Inc.

Rectigraph Co.
Reganstein Veeder Co.
Reliance Mill & Trading Co.
Rice, Barton & Fales.
River Raisin Paper Co.
Riverside Fibre & Paper Co.
Robertson Paper Co.
Rogers Paper Mfg. Co.
Rome Brass & Paper Co.
Rondout Paper Mills.
Royal Card & Paper Co.
Ruberoid Company.
Russell Playing Card Co.

St. Regis Paper Co.
A. Sanderson & Sons.
Sandura Co. Inc.
Saranac Pulp & Paper Co.
Schmidt & Ault Paper Co.
Schmidt Lithograph Co.
Schroon River Pulp & Paper Co.
Scott Paper Co.
Sears Roebuck Co.
Sequoia Mills Inc.
Sexton Can Co.
Smith Paper Co.
Southern Extract Co.
Southern Paper Co.
Southworth Co.
Spaulding Fibre Co.
Standard Asbestos Mfg. Co.
Standard Paper Mfg. Co.
Standard Wall Paper Co.
John Strange Paper Co.
Strathmore Paper Co.
Suburban Laundry Co.
Sutherland Paper Co.
Suzuki & Co. Ltd.
Sylva Paperboard Co.

Taggart Brothers.
Taggart-Oswego Paper & Bag Corp.
Tennessee Extract Corp.
Thilmany Pulp & Paper Co.
Tileston & Hollingsworth.
Tissue Co.
Tonahawk Pulp & Paper Co.
J. C. Trees.

Uncas Paper Board Co.
Underwood Mills Inc.
Union Bag & Paper Power Corp.
Union Bag & Paper Co.
Union Mills Paper Mfg. Co.
Union Paper Co.
Union Paperboard Co.
U. S. Asbestos Co.
U. S. Gypsum Co.
U. S. Photo Products Co.
Universal Sheet Metal Works.
Upson Company.

Valley Paper Co.
Veldown Company.
Victor Mfg. & Gasket Co.
Vim Electric Co.
Viscose Co.

Waldorf Paper Products Co.
Warren Mfg. Co.
Waterfalls Paper Mills.
Watervliet Paper Co.
Wausau Sulphate Fibre Co.
Western Board & Paper Co.
Western Paper Converting Co.
West Virginia Pulp & Paper Co.
Geo. W. Wheelwright Paper Co.
C. R. Whiting Co.
D. Whiting Sons.
Whiting Milk Co.
Whiting Plover Paper Co.
Windsor Locks Paper Mill.
Wortendyke Mfg. Co.
Worthy Paper Co.

York Card & Paper Co.
York Haven Paper Co.

J. O. ROSS ENGINEERING CORPORATION
CHICAGO. PORTLAND, ORE.
NEW YORK

duly executed. Signatures must be guaranteed by a bank or trust company doing business in New York, Boston or Montreal or having a New York, Boston or Montreal correspondent or by a New York, Boston or Montreal Stock Exchange firm. Transfer stamps need not be attached. Depositors will receive all regular dividends paid on the deposited stock pending the consummation of the plan. In the opinion of counsel the exchange of stock of International Paper Company for shares of the New Company will not expose shareholders to any United States or Canadian Federal Income Tax. Withdrawal from the plan may be permitted in accordance with the provisions of the agreement.

Application will be made to list the Certificates of Deposit on the New York Stock Exchange in order that transactions may continue during the period prior to the consummation of the Plan. Application will be made to list the 7 per cent preferred and the common stocks of the new company on the New York, Boston and Montreal Stock Exchanges as soon as the plan is declared operative.

The depositaries under the plan are: the Chase National Bank of the City of New York, 57 Broadway, New York; The First National Bank of Boston, 67 Milk street, Boston, and the Montreal Trust Company, 11 Place d'Armes, Montreal, Que.

Wood Flong Co. to Operate at Hoosick Falls

[FROM OUR REGULAR CORRESPONDENT]

HOOSICK FALLS, N. Y., July 3, 1928.—The Wood Flong Company, located in Mechanicville for many years in the plant recently disposed of to the Gillette Fibre Mills, will operate in Hoosick Falls hereafter in a plant now being prepared for occupancy. A large section of the old Wood plant is to be utilized.

Contractors this week began excavation for a railroad spur from the Boston & Maine line into the plant of the Wood Flong Company. New rails of a heavier type will be installed and the trestle leading to the plant will be strengthened. A new concrete floor covering an area 476 feet by 100 feet will be laid. This improvement will cost about $15,000. A new building 25 by 86 feet will be erected with provisions for further expansion.

Additional electric work is under way and connections are being made for supplying more than 1,000 horse power. The Twin State Gas & Electric Co. will run a special transmission line from its power house.

The first carload of new machinery arrived early this week and work of installation was immediately started. The Noble & Wood Company, of this village, will furnish a large amount of equipment for the new plant, deliveries to start in the near future. New construction contemplated by the Wood Flong Company includes a new boiler house and a new office building. Definite plans, however, have not been completed for these structures.

Lowe Paper Co. Places Aviators' Sign

[FROM OUR REGULAR CORRESPONDENT]

RIDGEFIELD, N. J., July 3, 1928.—R. B. C. Noorduyn, chairman of the Aviation and Airport Committee of the Bergen County Chamber of Commerce, announced today that the second of a series of aviation direction signs throughout the country, will be placed on the roof of a shed of the Lowe Paper Company in Ridgefield.

The shed is three hundred feet long, and the sign will be made two hundred feet long.

Donald V. Lowe, vice president of the company, after conferring with Mr. Noorduyn, said that the sign will be made of white crushed stone, and not painted, which is the usual procedure.

The roof is black and pebbled, so that the white crushed stone spelling "Ridgefield," and the white arrow pointing the way to Teterboro airport, will be plainly visible from the air.

It is expected that other municipal direction signs for aviators will be placed throughout the county at early dates.

Canadian Carton Plants Amalgamate

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, July 2, 1928.—Firstbrook Bros., Ltd., the Rudd Paper Box Company, Ltd., and Canada Cartons, Ltd., have, it is announced, amalgamated their respective interests, and will in future combine activities under the name of Firstbrook Boxes, Ltd. The merger of two of the oldest established concerns in the Dominion manufacturing wood and corrugated fiber shipping containers and paper cartons creates a new company, which will be the largest wholly Canadian-owned corporation in the industry.

It is understood that production will continue in the present plants, Firstbrook Bros., Ltd., being located at King street, and the Rudd Paper Box Company and Canada Cartons at Richmond street, until completion of a factory to be erected on a ten-acre site recently acquired in the town of Mount Dennis, just outside Toronto. The constituent companies will then move their equipment to the new building, which will be larger than the present plants combined, covering a ground area of some 130,000 square feet. The site adjoins the Canadian Pacific Railway tracks, which at this point runs parallel with the Canadian National sidings, and switches will be constructed to facilitate the rapid delivery of raw materials and the dispatch of manufactured goods.

Firstbrook Bros., Ltd., was founded in 1867 by William Firstbrook, and has steadily grown in importance, until today the company occupies the leading position in the wooden box industry in Canada. In addition to their Toronto factory a shook mill at Thessolon is operated.

The Rudd Paper Box Mompany, Ltd., purchased the business of the Elliot Paper Box Company in 1907, and the present factory, which has since been greatly enlarged, was erected on Richmond street at that time. In 1924 the Rudd Company acquired exclusive rights for Canada and the British Empire from the Robert Gair Company in New York for the use of all the designs, engravings, inventions and cartons originated in the research laboratories of the latter company, who are the largest producers of cartons and shipping containers in the world.

Canada Cartons, Ltd., was formed as a subsidiary to the Rudd Paper Box Company in 1924 in connection with the Gair rights, and has been closely associated with the Rudd Paper Box Company in their development in Canada.

Firstbrook Bros., Ltd., will supply practically every type of wooden packing box, corrugated fiber shipping unit and paper carton necessitated by industrial demand of the present day. These will be produced by the latest types of machinery under most modern and efficient conditions at the new factory, and these facilities, combined with the savings which can be effected by the centralizing of all activities in one plant, will place Firstbrook Boxes, Ltd., in a dominant position in the shipping container field.

The amalgamating companies have impressive records of financial growth, having been largely built up through earnings. It is understood the new company will be controlled and managed by the present executives, John Firstbrook becoming chairman of the board; E. Victor Donaldson, president and general manager, and Harold Firstbrook, vice-president.

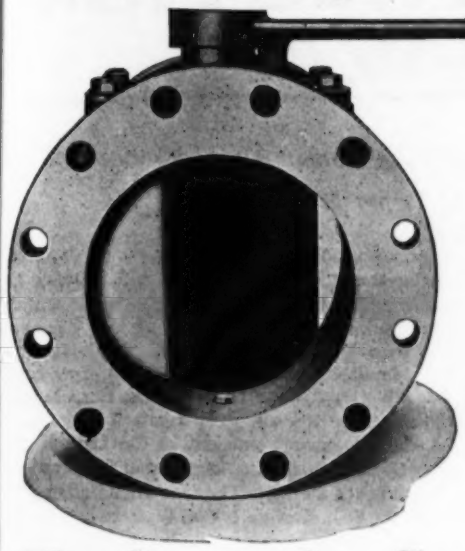
Northern Paper Mills Dividend

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., June 25, 1928.—Dividends amounting to fifty cents a share have been declared by the Northern Paper Mills, of Green Bay, Wis., on its common stock. The announcement was made following a recent directors meeting at which the progress of the company was reviewed. The dividend will be paid on June 30 to stockholders of record on June 26.

Some importance attaches to this action, because it indicates continuance of progress. The first dividend paid for several years was authorized on January 1, 1927, and although small, indicated that the industry was "turning the corner." This second payment gives the stockholders encouragement for further progress.

For Any Paper Stock Line



Valley Plug Valves were designed especially for paper stock pipe lines—to give easy and positive operation under all conditions—to effect savings in original cost and operation over the ordinary valves. The operation of 1350 Valley Plug Valves today prove they efficiently perform the tasks for which they were built—outstanding of which are—

Quicker and easier to operate

Cannot clog like ordinary valves

Cost less than old type valves

Compactly built for close quarters

Easily installed in existing lines

To direct the flow from one pipe to another

The Valley Three-way Plug Valve is designed for use where the flow of stock must be directed from one pipe line to another—where two straight type valves would be cumbersome with the three-way valve one runway is open at a time, but both outlets may be closed at the same time. This type valve requires very little operating space—same construction as the two-way valve.

Our Plug Valve booklet describes fully the construction and operation features of Valley Plug Valves. A copy will be sent free upon request. Write for it today.

VALLEY IRON WORKS CO.

Machinery for Paper and Pulp Mills

APPLETON WISCONSIN

New York Office: 350 Madison Avenue

Western Manufacturing & Sales Division: Smith & Valley Iron Works Co., Portland, Oregon

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Fulton, N. Y.—The Sealright Corporation, South First street, manufacturer of paper containers, has preliminary plans under way for a new addition to its plant on site on State street, to be two-story, reported to cost in excess of $200,000, with machinery. It is understood that bids will be asked on general contract at an early date.

Neenah, Wis.—The Bergstrom Paper Company, 225 West Wisconsin avenue, has awarded a general contract to the C. R. Meyer & Sons Company, 50 State street, Oshkosh, Wis., for its proposed new power plant addition, to be one-story, reported to cost approximately $80,000, with equipment. Orbison & Orbison, 110 West College avenue, Appleton, Wis., are engineers. N. H. Bergstrom is treasurer.

Muskegon, Mich.—The Michigan United Paper Company, lately formed with capital of $50,000, has concluded arrangements for lease of former local plant of the Muskegon Extract Company, which will be remodeled and equipped for a new mill. The leasing company will specialize in the production of asphalted papers, waxing papers, etc., and is affiliated with the United Paper Company, East Braintree, Mass. It is purposed to have the new mill ready for service at an early date. Frank E. Donovan, president of the East Braintree organization, will act in same capacity for the new company; C. N. Sessions, Muskegon, is vice-president; and Wallace Foote, secretary and treasurer.

Cedar Rapids, Iowa—The Kilborn Photo Paper Company, 116 First avenue, is completing plans and will soon take bids for a new two-story plant at First avenue and Twenty-ninth street, reported to cost about $35,000, including equipment. Norman Hatton, O. R. C. Building, is architect in charge. Paul Kilborn is general manager.

Kansas City, Mo.—The Mapes Consolidated Manufacturing Company, Tenth and Locust streets, manufacturer of corrugated paper specialties for egg crate fillers, etc., is contemplating plans for a new one-story addition, 60 x 200 feet, to be used for paper storage and other service. The company will also build another extension, 55 x 80 feet, to be equipped for machine purposes. It is purposed to begin work at early date. John C. Lawrence, Commercial Building, North Kansas City, is architect. Headquarters of company are at Griffith, Ind.

Mechanicsville, N. Y.—The West Virginia Pulp and Paper Company, 200 Fifth avenue, New York, has begun its expansion and improvement program at local mill, including construction of new units and installation of equipment. Entire work is reported to cost close to $500,000. Contract recently was let to the Morton C. Tuttle Company, 31 St. James avenue, Boston, Mass.

Springfield, Mass.—The Paramount Specialty Company, manufacturer of paper towels, napkins, etc., has begun an expansion and betterment program at its plant to provide for considerable increase in present capacity. It is purposed to develop facilities for an output of close to 2,000,000 pieces of paper goods per day.

Watertown, N. Y.—Following recent organization of the Taggart Corporation, with capital of 1,200,000 shares of stock, no par value, to take over and consolidate paper mill interests in this section, plans are said to be under way for general expansion in properties to develop increased output at the plants. The new company will take over Taggart Brothers, Inc., with mill at Watertown for the manufacture of special multi-wall paper bags and containers; the Taggart-Oswego Paper & Bag Corporation, Oswego, N. Y., manufacturer of kraft paper bags and containers; and the Champion Paper Company, with mill at Carthage, N. Y. The last noted company controls the Carthage Power Corporation, which will be included in the merger. The new organization will be under the direction of F. L. Carlisle & Co., Watertown, operating a number of public utility properties in the Northern New York district. F. L. Carlisle will be president of the Taggart Corporation, while B. B. Taggart and R. B. Maltby will be vice-presidents, and R. K. Ferguson, secretary and treasurer.

Holyoke, Mass.—In connection with its expansion and improvement program, recently announced, the American Writing Paper Company has completed plans for the erection of two new buildings at its mill, comprising a three-story extension, 40 x 52 feet, to be used as a beater room, and one-story boiler plant addition, 45 x 50 feet. Both structures will cost in excess of $75,000, with equipment. Bids have been asked on general contract and work will begin at an early date.

Niagara Falls, N. Y.—The Burkhardt Paper Corporation has been formed under Delaware laws with capital of 380,000 shares of stock, no par value, to take over and expand the Burkhardt Paper Company, with local mill for the manufacture of chip and news specialties, insulating paper goods, etc.

Anderson, Ind.—The Certain-Teed Products Corporation, manufacturer of building and roofing papers, etc., has plans under way for extensions and improvements in its local mill at First and Delaware streets for increased capacity. The work is expected to cost close to $50,000, with equipment. Headquarters of company are at 100 East 42nd street, New York.

Philadelphia, Pa.—The Philadelphia Fibre Box Mill, Vandalia street, near Taska street, has filed plans for its proposed new addition, reported to cost about $35,000, and will proceed with work at once. The structure will be used primarily for storage and distributing service.

Gloucester, N. J.—The Lang Paper Company is now operating at its new local mill, following removal from Philadelphia, Pa., occupying a portion of the former shipyard of Pusey & Jones, and will reach maximum capacity at an early date, when full working quota will be employed.

Astoria, Ore.—In connection with its new pulp and paper mill now in course of construction, the Northwestern Pulp and Paper Company has engaged Stevens & Koon, Spalding Building, Portland, Ore., consulting engineers, to prepare plans for new water system for the mill. The company has contracted with the city for a water supply totaling 4,000,000 gals. per day for a period of years, and increased facilities will be installed to provide for the service.

New Orleans, La.—The Hardin Bag Company, Inc., 500

TRANSITE ASBESTOS LUMBER
PAPER MACHINE HOODS

GUARANTEE

1. Permanence without maintenance
2. Absolute fireproofness
3. Accessibility to machine parts
4. Lasting high efficiency

HOODS that do not meet every one of these requirements are expensive no matter how small their initial cost.

Too many hoods are today accepted as satisfactory when, in reality, they are but fifty per centers—only half way between the practically obsolete unhooded machine and one which is *scientifically* hooded. Our Transite Asbestos Lumber Hoods are scientifically designed.

They give maximum assistance to the ventilating system; they provide fireproof, rotproof and permanent receptacles for gathering the moist air; their smooth undersurface and vapor-tight construction permit the uninterrupted flow of this moist air to the economizer or out-of-doors.

Unique among Hood designs is our Panel Type construction developed by us to eliminate costly machine shutdowns during hood erection and machine repairs.

The Panel Type Hood illustrated above was delivered to the mill in knocked-down form. Assembly of the Hood was made in less than fifteen hours on a regular week-end shutdown.

Speedy repairs or adjustments to dryers, felt rolls and gears are possible by removing one or more Hood panels, which are readily put back in place.

Are *your* hoods fifty per centers? One of our engineers will gladly help you in arriving at an answer to this question. Use the coupon for complete information.

MASTER of ASBESTOS
Johns-Manville
TRANSITE ASBESTOS LUMBER
PAPER MACHINE HOODS

JOHNS-MANVILLE CORPORATION
Paper and Lumber Industry Section
New York, Chicago, Cleveland, San Francisco
Branches in all large cities
Canadian Johns-Manville Co., Ltd., Toronto

Please send me copy of your booklet, "Controlling Condensation."

Name_____

Company_____

Address_____

P. M. B.--90--7.

North Murat street, recently formed with a capital of $200,000, is reported planning the early operation of a local plant for the manufacture of paper bags and containers. Harry S. Hardin heads the new organization.

Vancouver, Wash.—With the completion of plans for its proposed new mill at Sixth, Fifth and Harney streets, the Union Bag and Paper Corporation, Woolworth Building, New York, is said to be arranging early award of contract for the initial mill unit, consisting of a one-story structure with approximately 35,000 square feet of floor space, reported to cost close to $200,000, with equipment.

Holyoke, Mass.—The Holyoke Card and Paper Company is holding to regular production schedule at its mill, with employment of normal operating force and expects to maintain this basis for an indefinite period. G. Frank Merriam is president.

Omaha, Neb.—The Bloch Paper and Notion Company is reported planning the early replacement of the portion of its plant in the Bloch Building, recently damaged by fire. The total loss approximated $100,000, divided among several occupants of the industrial building. The damage to the Bloch company plant is said to be about $20,000.

New York, N. Y.—In connection with the new paper mill of the Central Paper Trust of the Soviet Russian Union, now in progress near Balakhna on the Volga River, Nijni-Novgorod district, an engineer has been stationed in the United States, with headquarters at offices of the Amtorg Trading Corporation, 165 Broadway, to make purchases of paper mill machinery and equipment as may be required for the project. The plant will be provided with most modern equipment and facilities and is scheduled for completion within a year. It will have an initial capacity of 50,000 tons of news print per annum, and about 25,000 tons of wrapping and other papers. The entire cost is estimated at $16,000,000.

Seattle, Wash.—In connection with its proposed pulp and paper mill project, the Seattle Pulp and Paper Company, care of Tom G. Taylor & Co., Dexter-Horton Building, has arranged for an increase in capital to $2,212,700, and will carry out financing for its project at an early date. The mill will be located on a 20-acre tract of land on the Duwamish River, near Seattle, and is reported to cost close to $1,500,000, with machinery. Joseph Irving, head of the Crescent Logging Company, Everett, Wash., is president.

Franquelin, Ont.—The Ontario Paper Company, Ltd., Thorold, Ont., has acquired the plant and timber properties of the Franquelin Lumber and Pulpwood Company, Ltd., at Franquelin and vicinity at a public auction for a consideration of $1,100,000, and will use for expansion in operations. The timberlands approximate 125 square miles, with an additional site limit containing about 100,000 cords of pulpwood. The new owner is reported to be planning to occupy the mill at an early date.

Boston, Mass.—The Horle Paper Box Company, recently formed by Francis A. Horle, 43 Crowninshield street, Brookline, Mass., and associates, plans the operation of a local factory for the manufacture of paper boxes and containers of various kinds. Mr. Horle will be president and treasurer of the company.

Taggart Oswego to Build Warehouse

[FROM OUR REGULAR CORRESPONDENT]

OSWEGO, N. Y., July 3, 1928.—Plans for a large warehouse at the plant of the Taggart-Oswego Paper and Board Corporation have been prepared by the St. Regis Paper Company, according to Corwin T. Jewell, general manager of the St. Regis and affiliated companies. The new building will be erected along the lake shore adjoining the present plant. It will be constructed of steel with sidewalls of galvanized iron and a fireproof roof. The structure will be 110 feet long and 90 feet wide and when completed will be used for storage of baled pulp and other raw materials used in the production of Taggart mult-wall bags. Actual construction work will start within a short time.

Forestry Problems in Idaho

Many forestry problems in Idaho are approached from technical, economic, and lay viewpoints in the 1928 annual edition of the Idaho Forester, just issued by the Associated Foresters, an organization of students in the University of Idaho School of Forestry. The 1928 issue is the tenth since the student foresters at the University commenced publishing a yearbook.

The yearbook is dedicated to the Hon. Chas. C. Moore, former governor of Idaho, "in recognition of his services to the cause of forestry, notably in the signing of the bill which gave the state a law generally recognized as a model of state forestry legislation." In discussing forestry from a layman's viewpoint, the former governor says, "Only those of us who are intimately acquainted with the timbered areas of this commonwealth, those of us who have traveled the forest trails and who are aware of the magnitude of the lumbering operations now being carried on, can appreciate the importance of the part being played by the men who make forestry a profession."

Ben E. Bush, state forester, reports on the state forest lands and their resources. W. D. Humiston, assistant general manager of the Potlatch Lumber Company, discusses the important economic problem of reducing waste in lumbering operations, in both mill and field. J. A. Larsen, now with the school of forestry at Iowa State College, but formerly director of the Northern Rocky Mountain Forest Experiment Station, is author of an article carrying suggestions for a forest research program for Idaho. Dean F. G. Miller explains the functions of the Forest Experiment Station recently created to meet the demands for fundamental investigation in forestry problems. Dr. Ernest E. Hubert, in charge of the forest research laboratory, writes on the blister rust situation in the west with particular application to Idaho timber stands, and L. F. Parsons, executive secretary of the University, writes of the new Forest Experiment Station.

Other writers on subjects in the forestry profession appearing in the annual include C. B. Morse, assistant district forester, Ogden, Utah; William B. Miller, assistant range examiner, U. S. Biological Survey, Reindeer Investigations, Fairbanks, Alaska; Leon Nadeau, Garden Valley, winner of the state forestry essay contest sponsored by the North Idaho Forestry Association as a feature of American Forest Week; T. G. Taylor, assistant professor of forestry; A. M. Sowder, state extension forester; H. I. Nettleton, instructor in forestry; Wallace M. Saling, Charles A. Gregory, Alden B. Hatch, F. Gordon Ellis, Allan R. Cochran, and Charles E. Fox, members of the 1928 graduating class of the forestry school.

Belgian Paper Industry Prospers

[FROM OUR REGULAR CORRESPONDENT]

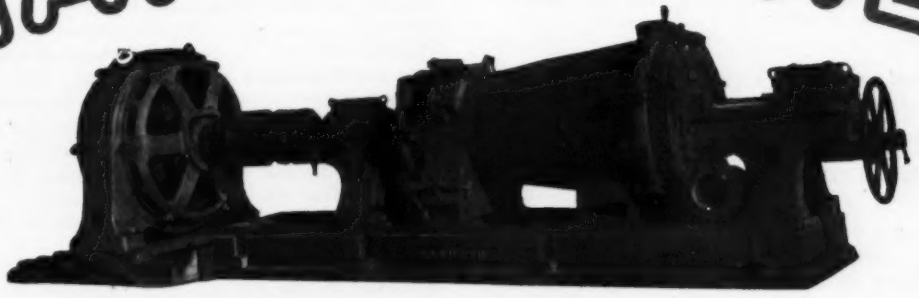
WASHINGTON, D. C., July 3, 1928.—The activity reported in the Belgian paper industry during the past few months continued during May, according to a report to the Department of Commerce. The demand both for export and domestic consumption remained strong, and all plants operated at maximum capacity, several being booked ahead for two or three months. Paper mills report a very satisfactory month, production being immediately absorbed. Arrivals of wood pulp were also regular and sufficient to meet the demand. Prices on raw materials and paper were firm with a tendency to increase. Importations of news print and wrapping paper were fairly large and no change is reported in this trade. The Belgian paper industry on the whole is considered in a very prosperous condition and prospects for the future are promising.

President Willson To Return

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 3, 1928.—President Sidney L. Willson, of the American Writing Paper Company, Inc., and Leon J. Yoerg, vice-president and general superintendent of the fine mills of the company, will return this week after a month spent in touring the paper mills of Germany.

HAMMERMILL



Helps The 'Business Printing' Business

Hammermill, of Erie, Pa., stakes its claim in the field of "Business Printing", and develops a rich, profitable lode. Purchasing agents, the watch dogs of the expenditures of big business, find in the Hammermill lines a happy balance between quality papers and reasonable price. Hammermill preserves this balance with modern mill methods and modern mill equipment.

Five Noble & Wood Jordans play an important part in the production of Hammermill Bond; Hammermill Ledger, Hammermill Cover and all the other standard Hammermill products. Hammermill places faith in them for the ultimate, precise refinement of stock that is so essential to uniformity of quality.

Behind the machines in practically every representative paper mill, regardless of the classification of its products, you will find Noble & Wood equipment, functioning dependably, year in and year out,—modern devices for every stage of processing, from raw material to the paper machine. There's a place for them in your mill. Let our engineers show you where.

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York

New York Trade Jottings

Edgar Rickard, president of the Pejepscot Paper Company, sailed from New York recently on the White Star liner *Majestic*, for Europe.

* * *

The governing committee of the New York Stock Exchange has admitted a trading under specified conditions $1,104,220 additional Class A common stock ($20 par value), and 60,000 additional shares of Class B common stock without par value, of the Container Corporation of America.

* * *

R. G. Macdonald, secretary of TAPPI, has been visiting mills at International Falls, Minn.; Cloquet, Minn.; Wausau, Wis., and Madison, Wis. While at Wausau he had an opportunity to assist Allen Abrams in making plans for the fall meeting of TAPPI, which is to be held at Wausau, September 25, 26 and 27.

* * *

The Oliver United Filters, Inc., successor to Oliver Continuous Filter Company and United Filters Corporation, announces that, until further notice, all orders and inquiries for Oliver Filter equipment should be referred to 30 West 42nd street, New York, and for United Filters, Inc., equipment, to 25 Broadway, New York.

* * *

The International Paper Company, New York, announces that the following additional firms have been appointed distributors of Adirondack Bond and Ledger: R. C. Kastner Paper Company, 8 Varick street, New York; John Carter & Co., Inc., 597 Atlantic avenue, Boston, Mass., and 74 Union Place, Hartford, Conn.; Carpenter Paper Company, 2149 Sacramento street, Los Angeles, Cal.

* * *

A new issue of 100,000 shares of Grasselli Chemical Company no par value common stock is being offered by the National City Company, New York, at $47 a share. This financing follows an amendment of the corporation's charter providing for the exchange of one share of common stock of $100 par value for three shares of no par common stock. According to the bankers the company plans to place the new shares on an annual dividend basis of $2.68 a share. Application will be made to list the company's common and preferred stock on the New York Stock Exchange.

* * *

A banking group headed by the National City Company, New York, and including Lee, Higginson & Co., Peabody, Smith & Co., Inc.; Peabody, Houghteling & Co., Royal Securities Corporation, Shawmut Corporation of Boston, Old Colony Corporation, the Union Trust Company of Pittsburgh, Hemphill, Noyes & Co., Continental National Company, First Trust and Savings Bank of Chicago, Anglo-London-Paris Company and the Anglo-California Trust Company is offering at 94½ and interest, to yield 5.40 per cent, a new issue of $50,000,000 Abitibi Power and Paper Company, Ltd., first mortgage 5 per cent gold bonds, series 9, due June 1, 1953.

"A New Day in the Paper Industry"

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., July 3, 1928.—The headquarters of the Eag'e Lodge of Papermakers, located in the Lyman Building, 205 High street, for the past 25 years, moved into new quarters Friday in the Marble Hall Hotel, directly across the street from their old "standby." The organization has launched a membership campaign and a folder, entitled "A New Day in the Paper Industry," is being sent out. Mathew J. Burns, vice-president and organizer for the International Brotherhood of Papermakers, left this city Sunday for new fields. He has been in this city for about seven months. A new organizer will come here in the fall.

Technical Men Visit Ontario Mills

A group of twenty technical men from the mills of eastern Canada left Toronto on June 23 to participate in the regular summer meeting of the Technical Section of the Canadian Pulp and Paper Association.

The program began with a delightful trip on the Steamer Noronic up the Great Lakes from Sarnia to Port Arthur. At Port Arthur and Fort William the party was joined by the local members and a program of mill visits, luncheons, country club dinners, etc., was in order. A thorough inspection was made of the new mill of the Great Lakes Paper Company, where a new 274-inch machine is about to be started and where preparations are in progress for installing a 304-inch machine. hTe mill of the Fort William Paper Company was visited, after which the Section was taken to Chippewa Park where a luncheon was tendered it by the city of Fort William and an address of welcome was delivered by Hon. R. J. Manion, M.P. In the afternoon the Provincial Paper Mills and the Thunder Bay Paper Company mills were visited, after which the visitors were taken to the Thunder Bay Country Club for dinner and entertainment.

The local committee of Port Arthur and Fort William included D. G. Calvert, Fort William Paper Company; R. Sutherland, Great Lakes Paper Company; A. G. Pounsford, Provincial Paper Mills, Ltd., and C. F. Jackson of Thunder Bay Paper Company, as well as several representatives of local civic bodies.

The party took the night train to Kenora, Ont., where the morning was spent in visiting the Norman Dam which provides power for the Kenora Mill and to the flour mill of the Lake of the Woods Milling Company. A visit was made to the Kenora Mill of the Backus-Brooks Company, after which the members of the Section were the guests at a luncheon of the Kenora Rotary Club. The afternoon was spent in motorboating on the Lake of the Woods and a banquet terminated the isit to Kenora at the Lake of the Woods Country Club.

Members of the Section returned by the night train to Port Arthur and by boat to Sault Ste. Marie where the mills of the Spanish River Pulp and Paper Mills, Ltd., and the plant of the Algonin Steel Company were visited. Following this the party returned by boat to Sarina and by train to Toronto.

The group that took the trip from Toronto westward included George Bearce, International Paper Company; H. J. Buncke, Abitibi Power and Paper Company; L. R. Brown, T. H. Broadhurst, Chas. Walmsley Company; George Carruthers, Interlake Paper Mills; A. E. Cadman, Canadian Pulp and Paper Association; D. L. Chant, Spanish River Pulp and Paper Mills, Ltd.; R. Comette, Lake St. John Paper Company; C. E. Curran, U. S. Forest Products Laboratory; H. P. Costigane, Ontario Pulp and Paper Safety Association; C. A. Fux, Waterous Engine Works, Fred L. Hogan, Port Alfred Pulp and Paper Company; Carl Jentz, Canada Power and Paper Company; J. F. Lawrence, Canada Power and Paper Company; R. G. Macdonald, Secretary of TAPPI; N. McCaghey, Price Bros. & Co.; J. M. Payne, Canadian Forest Products Laboratory; R. G. Smuthe, Technical Service Council of Ontario; John Stadler, Lake St. John Pulp & Paper Company, and J. N. Stephenson, Institute of Industrial Arts.

Rutter & McNaught Appointed Agents

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., July 2, 1928.—The Chemical Paper Company, Holyoke, Mass., has appointed Rutter & McNaught, Inc., additional agents in Boston and vicinity for Half-Tone Writing.

Paper Index Number for May

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 3, 1928.—May index number for paper production was 125 compared with 11[illegible] for [illegible] for May of last year, taking 1923-1925 at 100, according to the Department of Commerce.

Announcing

OLIVER UNITED FILTERS INC.

successor to

OLIVER CONTINUOUS FILTER COMPANY

and

UNITED FILTERS CORPORATION

A consolidation effected to advance Industrial Filtration generally and to render better service to all users of Filtration Equipment.

Oliver Continuous Filters, Deckers, Washers, Save-Alls.
American Filters; Deckers, Save-Alls.
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Kelly Pressure Filters
United Plate & Frame Presses
Sweetland Cantilever Filters
Oliver-Borden Thickeners
Sweetland Thickeners
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Johannesburg
Montreal
Halle, Germany

Tokyo
Melbourne
Soerabaia, Java

Scheveningen
Honolulu
Manila, P. I.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

For the Month Ending April 30, and for the Four Months Ending April 30, 1928, as Compared with Corresponding Months of Previous Year

IMPORTS—PAPER

	April				Four Months Ending April 30			
	1927		1928		1927		1928	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
Paper and manufactures (total)	.....	$11,317,487	.....	$12,118,411	.....	$45,931,575	.....	$50,602,730
Printing paper—								
Standard news print.....lbs...free	295,270,778	9,803,160	326,357,207	10,725,442	1,228,956,930	40,695,373	1,373,032,072	44,916,945
Imported from—								
Finland .....lbs.	3,132,121	86,941	6,537,451	177,673	20,180,968	580,355	24,508,530	665,412
Germany .....lbs.	1,302,194	41,178	1,126,986	29,411	5,265,789	163,857	5,256,803	141,640
Norway .....lbs.	2,226,810	60,827	516,904	12,012	12,446,182	336,060	5,710,085	146,103
Sweden .....lbs.	6,423,239	190,657	2,532,697	67,126	49,394,210	1,431,292	35,228,246	950,994
Canada .....lbs.	282,031,730	9,418,798	315,580,366	10,437,292	1,126,902,587	37,667,563	1,274,749,916	42,122,211
Newfoundland and Labrador.....lbs.	.....	.....	.....	.....	14,440,152	506,272	26,862,548	870,197
Other countries .....lbs.	154,684	4,759	62,803	1,928	327,042	9,974	715,944	20,388
All other, n. e. s.....lbs...dut.	1,138,086	53,536	749,637	33,295	3,551,977	171,094	2,907,439	131,539
Grease-proof and waterproof paper...lbs...dut.	119,826	26,887	158,699	28,536	572,433	104,448	375,465	75,040
Kraft wrapping paper .....lbs...dut.	478,109	21,288	298,143	12,364	2,355,973	106,606	2,003,627	84,383
All other wrapping paper .....lbs...dut.	131,880	7,766	1,071,451	22,234	1,838,059	89,828	6,010,226	125,660
Writing, letter, drawing, etc., papers.lbs...dut.	250,240	58,258	301,081	75,228	901,899	210,463	850,790	213,832
Surface coated paper .....lbs...dut.	142,501	64,189	211,484	100,401	632,010	248,346	759,789	355,437
Tissue, copying, etc., paper.....lbs...dut.	282,873	163,073	232,937	163,858	1,053,395	590,471	1,062,996	681,571
Paper boards, n. e. s.—								
Pulp boards in rolls .....lbs...dut.	6,709,818	161,951	5,427,233	120,470	20,085,765	492,094	19,445,882	434,112
Paper boards, pulp board, and card-board .....lbs...dut.	.....	.....	1,733,949	40,174	.....	.....	8,496,258	186,312
Leather board, test, and wall board.lbs...dut.	.....	68,893	240,787	5,312	.....	338,509	464,153	12,292
Cigarette paper, cigarette books, and covers .....lbs...dut.	1,160,601	323,271	952,588	260,440	3,226,248	927,831	4,212,862	1,156,659
Hanging paper (wall paper).....lbs...dut.	124,197	39,668	161,648	54,843	1,122,745	258,765	995,382	264,372
Duplex decalcomania, not printed....lbs...free	99,019	16,994	45,628	10,695	253,417	53,784	183,321	43,032
Paper boxes .....lbs...dut.	390,145	159,294	208,810	130,481	860,989	461,332	895,513	568,421
Pulp or papier-mâché and manufac-tures, n. e. s.....lbs...dut.	.....	19,411	.....	22,387	.....	138,631	.....	175,867
All other paper and manufactures.....dut.	.....	329,848	.....	312,251	.....	1,044,000	.....	1,177,256

WOOD PULP

Mechanically ground wood pulp.....tons..free	17,654	466,563	16,562	421,971	65,450	1,855,369	73,244	1,813,453
Sulphite wood pulp .....tons	54,992	3,712,343	51,439	3,071,572	278,502	18,384,002	294,157	17,259,862
Unbleached .....tons..free	27,891	1,595,937	29,865	1,462,531	177,781	10,366,672	198,636	10,035,404
Bleached .....tons..free	27,101	2,116,406	21,574	1,609,041	100,721	8,017,330	95,521	7,224,458
Imported from—								
Finland .....tons	7,200	390,781	6,373	274,407	27,461	1,483,730	30,774	1,275,485
Germany .....tons	6,617	450,725	4,760	297,973	22,941	1,638,625	17,581	1,166,695
Norway .....tons	4,300	324,195	5,631	356,687	22,093	1,699,802	23,790	1,590,713
Sweden .....tons	8,404	552,102	1,378	72,498	88,115	5,499,405	91,000	4,932,602
Canada .....tons	26,140	1,842,652	31,502	1,960,169	105,088	7,240,836	117,082	7,532,327
Other countries .....tons	2,331	151,888	1,795	109,838	12,804	821,604	13,930	762,040
Sulphate wood pulp, unbleached (Kraft pulp) .....tons..free	17,851	1,129,790	20,317	1,138,794	93,020	5,855,837	103,930	5,827,591
Imported from—								
Finland	2,059	117,124	4,919	198,508	3,740	211,051	11,162	474,161
Norway	707	43,048	1,586	81,147	3,323	202,016	5,058	258,845
Sweden	3,805	231,616	2,750	149,542	41,808	2,555,668	41,084	2,133,351
Canada	11,121	728,486	10,779	696,570	43,770	2,865,173	45,689	2,917,669
Other countries	159	9,516	283	13,027	379	21,929	937	43,563
Sulphate wood pulp, bleached.....tons..free	850	61,232	201	12,623	7,183	477,659	3,931	233,707
Other pulp .....tons..free	70	9,820	214	16,200	685	55,517	1,715	124,919

CRUDE PAPER STOCK

Rags for paper stock.....lbs...free	30,644,217	678,392	33,839,519	616,167	128,974,944	2,761,918	134,078,616	2,513,028
Waste bagging, waste paper, etc.....lbs...free	5,867,329	74,422	14,858,729	283,086	24,737,968	350,055	46,167,434	684,333
Old rope and all other paper stock...lbs...free	5,329,900	185,455	3,941,478	124,319	18,466,460	608,242	17,617,985	510,928

CHEMICALS AND OTHER PAPER MAKERS' MATERIALS

Colors, dyes, stains, color acids, and color bases, n. e. s.....lbs...dut.	766,275	817,049	553,592	592,200	2,656,844	2,974,120	2,179,660	2,355,902
Imported from—								
Belgium .....lbs.	25,208	38,993	15,018	18,741	85,565	126,373	47,157	52,598
France .....lbs.	45,061	46,945	4,032	5,661	81,214	94,568	29,901	40,480
Germany .....lbs.	517,722	517,230	358,078	355,806	1,707,857	1,813,274	1,385,211	1,374,827
Italy .....lbs.	30,200	39,558	15,081	12,806	49,342	58,686	37,661	33,264
Switzerland .....lbs.	112,794	142,740	149,886	184,640	612,586	760,992	558,736	710,337
United Kingdom .....lbs.	23,522	20,584	5,419	6,111	81,227	77,769	41,358	40,821
Other countries .....lbs.	11,768	10,999	6,078	8,435	39,053	42,458	79,636	103,575
Casein or lactarene.....lbs...dut.	2,808,041	348,935	2,579,385	327,785	10,515,698	1,236,832	11,174,411	1,516,742
Kaolin, china, and paper clay.....tons..dut.	28,009	262,874	25,516	280,892	96,712	949,416	85,348	876,499

(*Continued on page 50*)

DU PONT *Dyestuffs*

DU PONT
Brilliant Crocein
FL *Extra Conc.*

Du Pont Brilliant Crocein FL Extra Conc. is of high tinctorial power; is brilliant in shade, non-foaming and practically non-bleeding. In addition, it is extremely fast to light.

We recommend its use in the production of deep scarlet shades on covers and for all high-grade papers where these properties are essential.

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709 Hospital Trust Building
Providence, R. I.

569 Mission Street
San Francisco, Calif.

PAPER AND PAPER STOCK IMPORTS AND EXPORTS OF THE UNITED STATES

(Continued from page 48)

EXPORTS—PAPER

	April 1927 Quantity	April 1927 Value	April 1928 Quantity	April 1928 Value	Four Months Ending April 30 1927 Quantity	Four Months Ending April 30 1927 Value	Four Months Ending April 30 1928 Quantity	Four Months Ending April 30 1928 Value
Paper and manufactures (total)	.....	$2,351,118	.....	$2,395,854	.....	$9,169,757	.....	$9,947,910
Printing paper—								
News print paper ....lbs.	2,145,001	100,853	1,276,994	46,076	9,909,161	459,211	7,577,818	304,679
Exported to—								
Canada ....lbs.	299,424	20,347	40,921	1,944	1,087,688	69,549	388,251	21,302
Central America ....lbs.	53,261	2,300	22,544	894	203,900	9,950	302,797	11,040
Mexico ....lbs.	19,450	1,004	109,168	3,610	227,720	9,927	227,264	7,886
Cuba ....lbs.	708,461	32,908	288,784	9,200	1,814,695	84,245	1,496,195	57,463
South America ....lbs.	246,120	9,701	328,718	11,630	2,217,807	92,993	1,411,086	53,547
China, Hong Kong, and Kwantung..lbs.	.....	.....	52,059	1,973	286,120	16,651	244,350	11,116
Japan ....lbs.	36,592	2,670	.....	.....	58,547	3,602	15,093	693
Philippine Islands ....lbs.	709,986	26,767	387,670	15,140	3,464,324	137,692	3,211,904	129,151
Other countries ....lbs.	71,707	5,156	47,130	1,685	548,360	34,602	280,878	12,481
Book paper, not coated....lbs.	1,118,746	104,367	1,453,468	127,682	5,124,426	441,612	6,335,145	516,173
Exported to—								
Europe ....lbs.	331,205	25,950	46,518	4,132	506,937	43,952	161,800	15,071
Canada ....lbs.	298,144	23,051	336,004	22,046	2,146,481	95,210	1,574,380	109,591
Central America ....lbs.	19,583	2,109	53,655	5,154	108,764	10,854	140,324	13,192
Mexico ....lbs.	43,420	5,284	37,306	3,739	171,455	18,687	188,261	23,800
Cuba ....lbs.	157,306	14,109	293,140	23,691	608,264	53,512	1,491,073	113,966
Argentina ....lbs.	2,330	246	69,905	7,309	339,577	26,975	188,559	19,424
Other South America ....lbs.	89,375	7,065	117,016	8,876	966,152	68,399	427,049	34,844
China, Hong Kong, and Kwantung..lbs.	25,976	6,570	59,252	12,925	285,292	29,657	827,978	68,108
Philippine Islands ....lbs.	41,459	6,082	272,446	18,977	385,825	34,077	585,032	43,173
Australia ....lbs.	33,311	4,322	84,446	14,201	296,365	29,777	278,025	35,810
Other countries ....lbs.	76,637	9,579	83,780	6,632	309,314	30,512	472,664	39,194
Cover paper ....lbs.	121,283	24,644	171,653	31,497	500,500	91,846	668,735	114,675
Greaseproof and waterproof paper....lbs.	297,699	42,155	241,762	49,659	761,159	107,625	985,855	151,564
Wrapping paper ....lbs.	2,714,238	206,133	2,531,956	175,630	11,003,034	785,230	12,369,927	915,150
Surface-coated paper ....lbs.	329,913	47,413	651,247	70,189	2,420,617	303,181	2,404,712	284,371
Tissue and crêpe paper ....lbs.	386,427	80,966	499,314	88,781	1,385,820	304,567	1,912,037	381,787
Toilet paper ....lbs.	424,123	63,854	518,113	57,876	1,692,975	225,438	1,809,431	201,098
Paper towels and napkins ....lbs.	247,507	26,369	126,764	21,809	701,322	95,572	893,842	116,240
Box board ....lbs.	3,863,219	122,323	6,577,124	176,901	16,357,906	507,310	16,994,496	501,421
Bristols and bristol board ....lbs.	131,927	17,059	172,939	19,945	853,719	68,802	647,600	64,437
Other paper board and straw board....lbs.	3,943,575	226,453	2,812,395	150,306	13,354,119	697,256	12,515,490	628,081
Sheathing and building paper....lbs.	1,165,900	41,554	1,110,751	42,499	4,704,752	188,576	4,095,061	155,340
Wall board of paper or pulp....sq. ft.	3,895,614	133,677	5,120,801	158,163	15,353,814	520,613	13,466,057	509,482
Blotting paper ....lbs.	288,858	34,617	307,562	36,993	1,141,333	131,489	1,358,276	162,321
Filing folders, index cards, and other office forms ....lbs.	72,611	23,113	146,512	49,144	418,948	107,288	505,702	178,581
Papeteries (fancy writing paper)....lbs.	69,756	15,824	56,497	16,141	191,710	48,933	255,807	53,217
Other writing paper ....lbs.	922,833	136,676	1,912,253	259,064	3,409,933	598,315	7,221,790	911,110
Paper hangings (wall paper) ....yds.	1,821,370	53,625	3,355,794	56,660	12,533,022	270,166	17,640,444	325,185
Paper bags ....lbs.	957,033	81,269	553,115	49,369	5,119,522	437,649	2,727,247	249,644
Boxes and cartons ....lbs.	1,971,966	135,473	2,153,165	128,965	6,644,803	451,703	8,229,762	561,865
Envelopes ....lbs.	224,334	43,316	186,306	33,796	904,866	155,783	803,977	136,134
Vulcanized fiber sheets, strips, rods, and tubes ....lbs.	581,552	166,015	492,083	131,694	1,706,711	520,805	1,608,141	449,355
Manufactures of vulcanized and indurated fiber ....lbs.	86,592	20,636	102,109	24,956	200,251	52,111	285,051	66,492
Cash register and adding machine paper...lbs.	121,857	12,472	200,614	24,660	515,980	56,470	716,500	81,076
Other paper and paper products.....	.....	390,262	.....	367,399	.....	1,542,206	.....	1,928,432

WOOD PULP AND PAPER STOCK

Sulphite wood pulp ....tons	1,737	104,529	2,206	119,995	6,610	403,731	6,364	372,237
Soda wood pulp ....tons	281	26,819	315	20,755	599	54,835	753	56,972
Other wood pulp ....tons	164	10,622	108	13,856	690	30,995	836	47,346
Rags and other paper stock....lbs.	19,962,102	340,316	22,188,614	559,017	68,509,386	1,013,208	76,411,010	1,497,384

PAPER AND PULP MILL MACHINERY

Paper and pulp mill machinery....lbs.	1,091,448	230,192	1,904,631	300,718	8,427,132	1,687,720	6,311,371	1,251,644

Record Output for the Austrian Paper Industry

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 3, 1928.—Paper and pulp production in Austria reached record figures during the past year, with an output of 210,550 metric tons (metric ton—2,205 pounds) of paper, 55,900 tons of board, 194,790 tons of chemical pulp, and 93,590 tons of mechanical pulp, according to a report from Consul John P. Hurley, Vienna, made public by the Department of Commerce.

In the case of paper this represents more than twice the production in 1919 or 1920, and for chemical pulp more than six times the output for those years. The output of mechanical pulp and paper board has also heavily increased, as can be shown by comparing the above figures with production in 1919 of 58,660 tons of the former and of 30,850 tons of paper board for the same year.

The more rapid increase in Austrian output of chemical pulp as compared with that of wood pulp is explained by the rapidly increasing exports of the former commodity in recent years. Austrian exports of the former increased from 3,700 metric tons in 1920 to 89,000 tons in 1926, whereas shipments of mechanical pulp increased from 20,600 tons to 27,000 tons during the same period.

Approximately 60 per cent of the paper production of Austria enters export trade, shipments being directed chiefly to Italy, Hungary, Yugoslavia, France, China, and the United States, with a small amount going to Germany and Czecho-slovakia. The principal markets for chemical pulp are Italy, Germany, and France; those for wood pulp, Italy and France.

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PAPER TRADE JOURNAL
ESTABLISHED 1872

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Vol. LXXXVII New York, July 5, 1928 No. 1.

THE PAPER INDUSTRY AND ITS ASSOCIATIONS

Perhaps there never was a time when more serious and pressing problems confronted the paper industry of the United States, says Major O. M. Porter, Secretary of the American Paper and Pulp Association. These problems are of the type which confront most American industries. Happily they are largely of a temporary nature, there being no nation-wide change in demand, no immediately imminent shortage of raw materials and no impending general financial calamity.

It is true that during the last six weeks a marked seasonal slackening in demand has occurred in a number of grades and that at least two important elements in the industry are handicapped by serious instability. But these are by no means evidences of deep-seated stress nor do they indicate any lack of fundamental soundness in the industry or the business ability of its leaders.

With the American Paper and Pulp Association representing such diversified interests it is perhaps natural to think that the industry lacks leadership or strong control, and that its position is weaker than that of other industries. This is especially true in these trying times of intense competition.

But after all is the American paper industry so badly off? Are its troubles more serious than those in other industries? Doesn't the industry stand pretty well up in the list of the nation's profit-earning industries? And isn't it getting reasonably effective service under its present organization structure and that without any great amount of duplicated effort or expense?

The strong positions taken by individual companies and the effective service of the associations in the industry are counting heavily in the readjustment of our business conditions to meet the changed aspects of the present situation. As an industry we are making progress.

The constructive program of the Association's work for 1928-29, focused upon the industry's more important common problems of tariff protection, waste utilization, essential statistical service, etc., indicates its ability to handle these problems effectively. Cordial relations and real cooperation now exist between the executives of the various organizations of the industry, probably to a greater extent than ever before. The officers of the Association, individually and through special committees, are studying the problems of further coordination of cooperative effort. The Association is financially sound and is operating within its income.

So, after all, can't we just take another hitch in our belt and continue along these lines of well-defined service, considering our opportunities and limitations dispassionately, planning intelligently for more profitable cooperative effort and backing the industry's existing organizations for the service they can render?

The paper industry is one of diversified and multitudinous products. It is a fundamental industry. To be successful our industry must maintain steady progress, it must reduce the costs of production, distribution and overhead and it must improve the quality and the serviceability of its products. It must develop new uses and new markets and sell at prices which not only net fair profits on investments, but also enable the public to increase consumption.

The industry has developed much of the machinery for all this —costs, technical control, information and unified action. Its major common problems are being handled effectively by its central organization, the American Paper and Pulp Association, and the more intimate service problems of the various branches of the industry are being adequately met by the associations which serve the particular needs of these elements.

Our foundation is a substantial one. Upon it we may now build safely through further research, protective and promotive publicity and national advertising to create new demands, for profitable operation by the industry as a whole.

HONOR DREWSEN AND DORENFELDT

Dr. Viggo Drewsen, who is head of the research laboratory of the West Virginia Pulp and Paper Company, New York, was elected an honorary member of the Verein der Zellstoff-und Papier-Chemiker und-Ingenieure at the summer meeting of the Verein at Heidelberg University, on Tuesday, June 12, 1928, according to a cablegram received in New York last Saturday, which also announced a similar honor for L. J. Dorenfeldt, of Oslo, Norway, who is at present in New York, in a professional capacity.

To Dr. Viggo Drewsen belongs the credit of being a pioneer in providing an efficient method and process of recovering SO_2 gas in relieving digesters in sulphite cooking and his name is also linked with many other inventions in sulphite pulp manufacture.

Mr. Dorenfeldt, thought a native of Norway, is well known in the United States, being an active member of the Technical Association of the Pulp and Paper Industry. He is known internationally as a pioneer in the manufacture of kraft pulp and paper.

In 1889 Doctor Drewsen and Mr. Dorenfeldt were jointly awarded a prize of 10,000 gold marks offered by the Wolfacht-Unterkochen Sulphite Mills, Black Forest, Germany, for the best method of preventing stream pollution by the discharge of waste sulphite liquor.

PAPER MILL EMPLOYMENT

There was a decrease in both employment and payrolls in the paper and pulp industry in May compared with April while there was also a slight decrease in employment in the paper box industry according to the Bureau of Labor Statistics, Department of Labor.

Reports were received by the Bureau from 212 paper and pulp mills which gave their April employment at 56,966 decreasing in May to 56,726 a decrease of 0.4 per cent. The payrolls in these mills also decreased from $1,533,028 in April to $1,520,095 in May a decrease of 0.8 per cent.

The Bureau also received reports from 183 paper box factories which gave their April employment at 18,240 decreasing in May to 18, 091 a decrease of 0.8 per cent. The payrolls in these plants on the other hand increased from $402,280 in April to $404,692 in May an increase of 0.6 per cent.

Return to Russia After Study of Paper Mills

Two Russian engineers and six workers are sailing today on the "Berengaria" after a five months' study of the Canadian and American paper industries. Upon return to the Soviet Union all of these men will be employed in the $16,000,000 Volga paper mill, to be completed this year, which is the largest in the U. S. S. R. and one of the most modern in Europe. Another engineer will remain here for some time in connection with additional orders to be placed for American paper mill equipment. This is the third group of Soviet workers and technicians sent here to acquire first hand knowledge of American production methods. A group of 20 workers studied the California oil industry in 1925, while in 1926 50 mechanics worked for several months in Ford factories.

The members of the delegation were particularly impressed with the systems of factory organization employed in the mills studied by them.

"The Volga paper mill, where we shall work after returning to the Soviet Union," said a representative of the delegation, "is being equipped with the most modern papermaking machinery and equipment for handling logs and other materials. In particular, the wood yard equipment has been purchased in the United States by the Amtorg Trading Corporation and is the only American equipment of its kind in the country at present. We must say that the Canadian International Paper Company in whose factories, the Three Rivers and Gatineau, we spent most of the time, as well as other paper companies showed us the utmost courtesy during the entire period of our stay in Canada and assisted us in every way in making our visit a profitable one."

The Volga paper mill, which will start partial operation this summer, is designed to produce annually 50,000 metric tons of news print and 25,000 tons of other paper. The new factory will supply a large part of the requirements of the U. S. S. R. for news print which heretofore has been mainly imported from abroad.

The three engineers in the group are V. M. Klopov, B. V. Lopatin and E. A. Kajatz. The workers are V. Novikov, G. Veresov, P. Grigoriev, A. Price, A. Vasiliev and I. Tumanov.

Pulp Production Expands in Washington

BELLINGHAM, Wash., June 28, 1928.—Pulp production in Anacortes and Bellingham is to be increased. At Anacortes the Fidalgo Pulp Manufacturing Company has petitioned the city council for the vacation of a portion of a street adjoining its factory. Property owners in the vicinity have approved the petition, which has been referred to the streets committee. In Bellingham work is being rushed on an addition to the San Juan Pulp Manufacturing Company's plant. It wil lbe ready to operate in August.

Jaite Co. to Do Business in Oregon

[FROM OUR REGULAR CORRESPONDENT]

PORTLAND, Ore., July 1, 1928.—The Jaite Company, of Jaite, Ohio, has been granted a license to do business in Oregon, giving as its capitalization $600,0000. This procedure followed the recent announcement that the company will start a bag factory in connection with the St. Helen's Pulp and Paper plant at St. Helens, Ore.

C. W. Boyce Made Sec. of Woodlands Section

Major O. M. Porter, secretary of the American Paper and Pulp Association, has announced the appointment of Charles W. Boyce as secretary of the Woodlands Section of the association. Mr. Boyce will take up his work with the association immediately.

Mr. Boyce is known to the paper industry through his work in pulp and paper while a member of the United States Forest Service. He collaborated with E. H. Clapp, chief of research, Forest Service, in the preparation of U. S. Department of Agriculture Bulletin 1241, entitled "How the United States Can Meet Its Present and Future Pulpwood Requirements."

After being graduated in Forestry from the University of Michigan in 1914, Mr. Boyce spent several years in field work in California, Oregon and Alaska. During the war he became connected with the Air Service as a specialist in aerial mapping. Stationed at Langley Field, Virginia, he assisted in the perfection of aerial photography and the construction of photographic mosaics. The first photographic mosaic of Washington, D. C., was made under his supervision. Mr. Boyce is now a first lieutenant in the Air Service Reserves.

Following the war, Mr. Boyce resumed his connections with the Forest Service in the West, first as technical assistant on the Columbia National Forest and later as officer in charge of the Oregon Aerial Forest Fire Patrol. In 1920 he was transferred to the Washington office of the Forest Service to take the position left vacant by the resignation of Henry E. Surface.

Mr. Boyce was associated with the staff of the U. S. Chamber of Commerce during part of 1927 to assist in the Commercial Forestry Conference which was held in Chicago last November. In connection with this Mr. Boyce assisted in the preparation of three bulletins, Commercial Forestry and the Community, Forest Fire Control, Progress in Commercial Forestry.

In 1927 Mr. Boyce received the degree of Master of Arts from American University in Washington. In the fall of 1927 he was awarded a Sterling Fellowship at Yale but he was unable to take advantage of it.

Mr. Boyce will devote a major part of his time to the Woodlands Section, and assist Major Porter in the general work of the Association.

At the recent meeting of the Woodlands Section a representative advisory committee was appointed to formulate an effective program to assist the pulp and paper industry in handling its forestry and woods operation problems.

This program is now being developed and will be presented to the Advisory Committee for approval within the next month.

Simplification of Asbestos Paper

WASHINGTON, D. C., July 3, 1928.—The Division of Simplified Practice, Bureau of Standards, U. S. Department of Commerce, is now circularizing the industry for signed acceptance to Simplified Practice Recommendation No. 19, Asbestos Paper and Asbestos Millboard, which was recently revised by the Standing Committee.

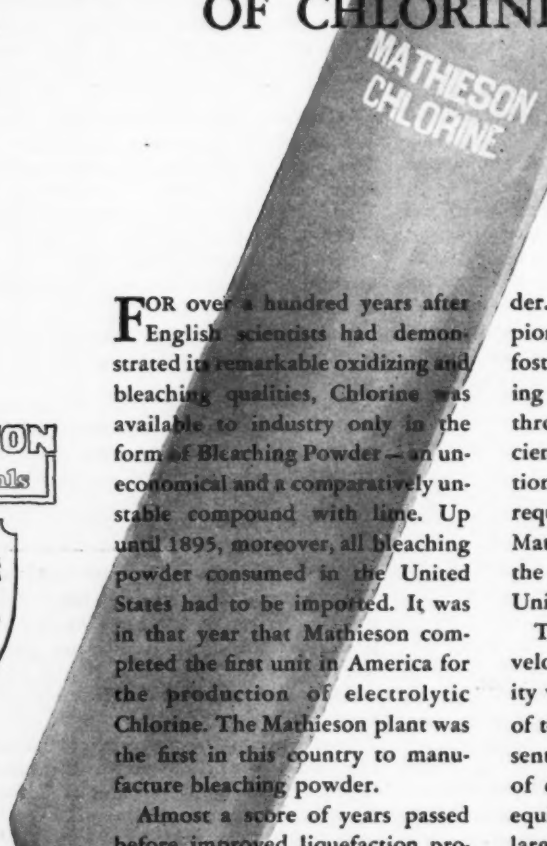
Upon receipt of acceptances, representative of at least 80 per cent of the industry, by volume of annual production, it will be re-published by the Department of Commerce. When approved, these revised recommendations will be in effect as of July 1, 1928, subject to regular annual revision. The average degree of adherence to the recommendation for the past year, based on a factual survey, was 76 per cent.

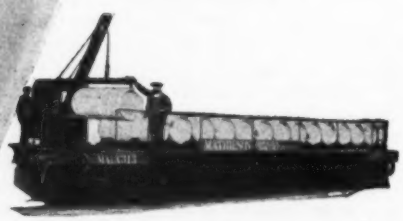
The Simplified Practice Recommendation, as revised is as follows:

Asbestos Paper—100 pound rolls, 36 inches wide, 8, 10, 12, 14, 16 pounds per 100 square feet, 1/16, ⅛ inch thickness; 50 pound rolls, 24 inches wide, 8, 10, 12, 14, 16 pounds per 100 square feet, 1/16 inch thickness; 50 pound rolls 18 inches wide, 8, 10, 12, 14, 16 pounds per 100 square feet, 1/16 inch thickness.

Asbestos Millboard—42 by 48 inch sheet, 1/16, ⅛, ¼, ½ inch thickness.

MATHIESON AND THE DEVELOPMENT OF CHLORINE





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SODA ASH
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Almost a score of years passed before improved liquefaction processes made possible the economical production of liquefied Chlorine gas in industrial quantities. Gradually Liquid Chlorine in steel cylinders began to displace bleaching powder. Mathieson was one of the pioneers in this development and fostered the transition from bleaching powder to Liquid Chlorine through the design of safe and efficient means of Chlorine transportation. When tank car shipments were required to serve larger consumers, Mathieson again was a pioneer with the specially constructed Multiple-Unit Tank Car.

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Edited by
RONALD G. MACDONALD, Secretary

Quality Control in the Sulphite Pulp Industry*

By Aleks. Lampén [1]

The increasing competition in the paper trade has compelled the paper maker, as well as the pulp producer, to pay more attention than formerly to the quality of the pulp. Improved means for the technical control of pulp production have been invented, and new scientific methods, for investigating the properties of the pulp, have been developed. The years after the great war have been especially fertile in this sphere. It is very fortunate for the pulp and paper industries that questions concerning the structure of the cellulose, lignin and other compounds of the wood, have become central problems of present-day international chemical research.

Much valuable light has been thrown on the physical and chemical structure of the cellulose, and apparently we are now near a definite solution of this interesting problem. The study of the lignin, the second important constituent in the wood so far has not been as successful, but many interesting facts have been ascertained. Our knowledge of the chemical processes in the manufacture of cellulose has also been considerably increased, but, so far, not sufficiently to enable us to understand clearly the inner mechanism of the cooking process.

In spite of all these improvements in the technical control of the production and scientific methods of examining the pulp, the old controversies between the paper maker and the pulp maker are not yet quite dead. When something goes wrong in the paper mill the paper maker still very often begins by blaming the pulp, and the pulp maker, when charged with having delivered the wrong stuff, is apt to answer that his pulp is all right but that something must be wrong with the paper making. It is necessary in the mutual interest of the pulp and paper industries that these unproductive discussions should be eliminated as far as possible, and that all differences concerning the quality of the pulp should be decided by definite scientific facts. Let us hope that the day is not far off when this will be possible.

What is the paper maker entitled to expect as regards the quality of the pulp, and how far is the pulp maker able to meet his justifiable demands, are questions of the highest importance in all the relations between the paper maker and the pulp maker. Many misunderstandings and differences can only be avoided by the pulp maker always keeping in view the essential requirements of the paper maker, and the paper maker appreciating the difficulties the pulp maker has to overcome.

Uniformity a Prime Requisite

One essential point on which the paper maker is entitled to get the fullest possible satisfaction is the uniformity of the pulp. A pulp of the highest grade is of little use to him if, in the properties most essential for the paper he is making, it varies considerably. Every pulp maker knows this, and does his utmost to produce a pulp which is as uniform as possible. Unfortunately even the most experienced and conscientious pulp makers do not always succeed in producing an absolutely uniform pulp. Let us see what it depends upon.

Practically all the chemical pulp on the market is produced by heating the raw material under pressure with solutions of certain chemicals. Sulphite pulp is manufactured by heating under pressure the chipped wood (in Northern Europe the fir *picea excelsa*) with a solution of calcium bisulphite, with an excess of sulphurous acid. The composition of the cooking solution—the acid—is necessarily of great importance to the process. In order to produce a uniform pulp the pulp maker tries to keep his acid as uniform as possible. Here he meets his first difficulty. Owing to causes which I cannot enlarge upon here certain variations in the composition of the acid cannot be avoided, even in the best conducted mills. Fortunately the influence of these variations on the quality of the pulp can, in most cases, be eliminated by corresponding alterations in the cooking process, but when the variations in the acid exceed a certain limit their effect on the pulp cannot be entirely prevented.

The digesters used in modern sulphite mills are very large. Their net volume frequently exceeds 250 cubic meters (55,000 gallons), corresponding to 130 cubic meters (about 4,500 cubic feet) corded wood, and yielding about 20 tons air-dry pulp from one cook. Even larger digesters are sometimes used. I have mentioned these figures to show the large quantities involved in the chemical processes taking place in a digester, and the large economic interest one cook may represent.

Pressure, Temperature and Time

When the digester has been filled with chips and acid the top is closed and the steam turned on, the pressure and temperature rise gradually and at a certain point the chemical process sets in. There are three factors by which the pulp maker can influence and control the process of cooking,—pressure, temperature and time. Experience and scientific research indicate that the influence of the pressure is rather limited, and for practical reasons the pressure is kept constant during the main part of the cooking process. Consequently, only two factors of control remain,—temperature and time. Both these factors influence the chemical process of cooking in the same direction, i.e., they both further the decomposition of the wood into fibers.

* Paper read to the Technical Section of the Papermakers Association of Great Britain & Ireland, March 21, 1928.
[1] Managing Director, The Tornator Mills, Finland.

The relation between time and temperature is of greatest importance as regards the quality of the pulp produced. This relation is usually expressed by means of a graph called the temperature curve. The temperature curves followed in the different mills vary considerably, according to the composition of the acid, the size of the digesters, the capacity of the steam plant, and the quality of the pulp produced. By study and experience the majority of the pulp makers have developed temperature curves of their own, which they try to follow as closely as possible, in order to get a uniform pulp. If the digester man is well trained and reliable, and nothing happens that compels him to retard or interrupt the cooking process, the pulp maker in most cases succeeds in following his temperature curve pretty closely. If, on the other hand, the cooking process is interfered with by some of the innumerable accidents that may happen in a mill, the result of the cook may vary considerably. The pulp might be all right but, in some of its properties, not possibly exactly what was expected.

When the cooking process approaches its conclusion, and the chips begin to decompose into fibers, a sample of the contents of the digester is usually taken out by means of a sample cock, and the pulp is examined by certain tests. Owing to the fact that the properties of the pulp change very quickly towards the end of the cooking process, and a considerable change can take place in 10 to 15 minutes, only quick and rough methods of testing can be used. So far as I know only color tests are employed, consisting of treating the pulp with either dyestuffs or oxidizing agents.

All these tests indicate the degree of chemical purity the cellulose has reached, or more exactly, how much lignin is still left in the fibers. The common expression for this is "degree of digestion, or degree of cooking," derived from the fact that the prolongation of the cooking process generally increases the chemical purity of the fibers. Another expression often used, namely "hardness of the pulp," is based upon the experience that a pulp of low chemical purity is harder to beat than a longer cooked, and consequently chemically purer, pulp. The other properties of the pulp can only be estimated from the color test, as the determination of, for instance, the strength of the fibers, the consumption of bleaching powder in bleaching, and so on, require too much time to be employed at this stage of manufacture.

The pulp maker has to decide, by means of the above-mentioned simple tests, when to stop the cooking process in order to get the correct quality of the pulp, and owing to the quick progress of the process he must be very prompt in making up his mind. His difficulties are increased by the fact that he cannot wait until the samples taken from the digester show the desired degree of cooking, but has to stop the cooking process somewhat earlier in order to allow for the changes in the pulp taking place during the relieving of the pressure in the digester. He is in the same position as the man shooting at a bird in flight, who has to aim well in front of the bird in order to hit it.

The Old Method

The older method of determining the conclusive point of the process of cooking, by periodically taking out samples of the cooking solution, and, either by chemical tests, or by the color and smell of the solution, ascertaining the changes it undergoes, is not sufficient when a uniform pulp of an exact quality has to be produced. The pulp maker can only find out, with any degree of accuracy, which point of completion the pulp has reached by examining a sample of pulp taken from the digester. The method of diluting with water a sample of the pulp taken from the digester, and examining it against the light, is also insufficient, because it merely shows how far the chips are decomposed into fibers, and does not show the chemical properties of the pulp.

The pulp maker has his first opportunity of finding out how near he has achieved his objective as regards the quality of the pulp when the digester has been emptied, the pulp washed out, screened and run on the machine. If everything has gone according to the rules, and the pulp wood has been uniform enough in structure and moisture, a skilled pulp maker can come very close to the quality required. Even in the case of deviations, within certain limits, from the standard course of manufacture, he can, as pointed out above, come very near the mark by running the last stage of the cooking process in a suitable way, provided too great difficulties are not put in his way by the quality, or rather inequality, of the wood.

The pulp wood being a natural product, is far from uniform. Depending on the degree of fertility and moisture of the soil in which it has grown, the atmospheric conditions of the district, the amount of light and shade, its structure varies within large limits. Wood grown under favorable conditions, with plenty of light and warmth, is softer and lighter in weight, and shows much larger annual rings, than wood grown under adverse conditions. The trees, for instance, in the south of Finland, grow, as a rule, much quicker than those in the north of Finland, owing chiefly to the difference in the atmospheric conditions. But even within rather limited districts the wood can vary considerably, according to the variation in the soil. And, lastly, variations in the wood from trees grown in the same forest may be great, depending on whether the tree has grown in the sun or shade. The following figures give an idea of these variations. Whereas in the south of Finland the average age of pulp wood varies from 40 to 50 years, at a mill in northern Finland the average age of logs of about the same size was found to be 140 years. The age of all the logs of about the same diameter going into one filling of a digester in a mill taking its wood from the district surrounding the great Saima Lake system in Finland, was determined, and found to be of an average of 55 years. The youngest log was only 25 years old, and the oldest no less than 207 years. Three logs with annual rings of 4.5, 1.5 and 0.45 mm. thickness, respectively, were selected for closer examination. As shown by the thickness of the annual rings, the first log had grown three times as quickly as the second, and ten times as quickly as the third. Samples of wood were taken from each log, and examined as to their physical properties, and the quality of the pulp they yielded, and were found to vary considerably. The specific weights of the wood in the three logs were found to be respectively:

0.3516.....0.5112.....0.5100

Samples of wood taken from the different logs were cooked simultaneously in separate perforated containers, but in the same digester, and the pulps obtained examined as to their chemical and mechanical properties. The results are grouped in the following table (Table 1).

TABLE 1

	Log 1	Log 2	Log 3
Degree of cooking Bergman Cl. number..	2.5	3.6	4.1
Average length of fibers in mm.....	2.41	3.05	3.02
Number of fibers in 1 gram.....2,884,000		1,792,000	1,892,000
Strength in meters breaking length.....	6,765	7,595	7,405
Color	Light	Medium	Dark

The Bergman chlorine number, of which more anon, indicates the consumption of bleaching chlorine, and stands in inverse ratio to the degree of chemical purity of the pulp. The breaking length, that is the length of the strip of paper which would be broken by its own weight, is determined by means of a method used in the Central Laboratory of Finnish Industry in Helsingfors, to which I will revert later.

The above figures characterize the three pulps as different brands, in spite of the fact that they had been produced under exactly the same conditions.

Variations in Pulp Wood

Every pulp maker has to reckon with considerable variations in his pulp wood. The uniformity of the pulp is not affected as long as the different kinds of logs are mixed fairly evenly. Unfortunately this is not always the case. The bulk of the logs from one logging camp do not, as a rule, mix completely with logs from another camp, even if floated together over the same rivers and lakes. The floats mix generally only in their outer parts, whereas the logs in the central parts of the floats are apt

to remain together. The mixing process is assisted by the logs being stored in large piles in the wood yards, but even then the mixing is seldom complete. This fact accounts for many unavoidable variations in the quality of the pulp.

Another difficulty the pulp maker has to fight is the variation of moisture in the pulp wood. A moist chip does not absorb the cooking solution as quickly as a dry chip, and consequently is more slowly decomposed into fibers. The result is that, when the fibers from a dry chip have reached the desired degree of cooking, the fibers from a moist chip may still be raw and splintery. If the process of cooking is continued until even the latter fibers are sufficiently cooked, the former are apt to be over-cooked. In any case, the result must be unsatisfactory, and the pulp is not as uniform as might be desired. By prolonging the first part of the cooking process, during which the cooking solution penetrates the chips, and the chemical agents are absorbed by the wood substance, the inequality of moisture in the chips can be more or less eliminated. This means, on the other hand, a serious loss of time, and decrease in the productive capacity of the plant. Consequently the pulp maker producing a high grade pulp endeavors to equalize the amount of moisture in the wood by seasoning it over longer periods of time. This again is limited by the space available for storing the wood, and by the financial factor of increasing interest.

I have purposely dwelt on the variations in the quality of the wood, because this is the factor which really accounts for most of the variations in the quality of even the best brands of pulp on the market. It cannot be eliminated by the modern science of pulp making, and consequently the buyers of pulp have to reckon with it.

Provided the pulp maker has a modern mill and an efficient staff, and with a fairly good and uniform pulp wood at his disposal, to what limits can he reduce the variations in the quality of the pulp? This question is very difficult to answer, because it is often impossible to decide what are the actual reasons for a sudden unexpected change in the quality. Is it due to unavoidable factors or merely to a lack of skill or attention?

The Central Laboratory of Finnish Industry in Helsingfors, an institution exercising scientific control over practically the whole Finnish output of chemical pulp, has collected much valuable material, which can be used in trying to answer the above question. Under supervision of the laboratory staff the consignments of pulp are periodically sampled in the ports before they are shipped and the samples thoroughly tested as to the strength of their fibers, the degree of chemical purity and mechanical cleanliness and so on. By comparing the results from a longer period of time an idea can be formed of the degree of uniformity in the quality of the pulp attained by the different mills. When leaving out the obviously abnormal cases, which must be due to unavoidable accidents, and taking into account the degree of accuracy of the testing methods, it can be said that sulphite pulps produced in well-conducted mills vary in their strength from 5 to 8 per cent, and in their chemical purity something like 10 to 15 per cent, from the average. Generally the variations in the chemical purity of easy bleaching pulps are smaller than of strong pulps.

Paper Requirements Relation to Pulp

The pulps on the market are graded as to their different properties and selected by the buyers according to the qualifications most essential for the papers they are producing. The ideal sulphite pulp should be white and clean, with long and strong fibers possessing a high degree of elasticity and chemical purity. In addition, it should be easily beaten. Unfortunately, as we all know, it is not possible to produce a pulp with all the above-mentioned properties represented at the same time in the highest degree. If some of the properties are strongly accentuated, others will, to a certain degree, suffer. For instance, if the pulp is made exceedingly strong, which necessarily implies a low degree of cooking, it will be harder to beat, and its fibers less elastic than in pulps of higher cooking degree, and consequently less strength. As screen plates with the finest slits cannot be used for very strong pulps the cleanliness of the pulp will suffer. And, lastly, owing to the low degree of cooking, which leaves a large percentage of the brown lignin in the fibers, the color of the pulp will be darker. Consequently, all the other desirable properties in the pulp are represented in a lower degree if the strength of the fibers is greatly accentuated. On the other hand, if the pulp is made very easy bleaching, that is, of a high degree of chemical purity, the strength of the fibers is considerably decreased through the prolonged cooking process. The cleanliness of the pulp, and frequently the color, is also apt to suffer through the knots in the wood becoming soft and easily broken up. Usually the brands between the extreme qualities come nearest to the ideal pulp.

I have repeatedly alluded to the fact that the properties of the sulphite pulp are intimately connected with its degree of cooking, that is, its chemical purity. The following table (Table 2) illustrates the relation between the cooking degree and the strength of strong and easy bleaching pulps from three different mills. All these mills are using the same mill equipment, and the same kind of wood, for manufacturing both their strong and easy bleaching pulp, which are consequently produced under similar conditions.

TABLE 2

	Brand	Cooking degree, Bergman Cl. number	Strength in meters breaking length
Mill I	Strong	9.01	7,180
	Easy Bleaching	4.19	6,670
Mill II	Strong	8.81	7,275
	Easy Bleaching	3.32	6,225
Mill III	Strong	6.97	7,760
	Easy Bleaching	2.07	5,010

But experience shows that, in pulps of the same cooking degree, the different properties of the fibers vary considerably. This is due to different causes, one of which I have already mentioned, namely, variations in the quality of the pulp wood. If the fibers in the wood are of low strength owing to some peculiarity of its growth, or through deterioration, no skill in pulp making can produce a strong pulp of such raw material. But also the method of cooking exercises a great influence on the strength and other qualities of the pulp. Here the importance of the cooking time and temperature, and to some extent the composition of the acid, is brought out. I have not the opportunity here of going deeper into these very interesting details of the cooking process. The general rule is that slow and careful cooking at a low temperature with an acid of moderate strength, yields a strong pulp, with other desirable properties well represented, whereas quick methods, which necessarily imply higher temperatures and usually also, very strong acids, are more injurious to the strength of the fibers. In Table 3 I have compared the pulps of three different mills. The pulps are practically the same degree of cooking, as shown by the Bergman chlorine number, but the strength of their fibers varies considerably.

TABLE 3

	Cooking degree, Bergman Cl. number	Strength in meters breaking length
Mill I	6.97	7,760
Mill II	6.97	7,215
Mill III	6.93	6,405

Length of Fibers

The length of the fibers is a matter frequently discussed between the producers and buyers of pulp. The opinion that is not uncommon, that the length of the fibers is influenced by the process of cooking, is not founded on facts. It is scarcely necessary to point out that the fibers cannot be lengthened beyond their natural stretch through any variation in the process of cooking. More natural is the common presumption that the fibers are more or less shortened during the cooking process by the ends of the individual fibers being dissolved or by the fibers being broken. Researches recently carried out in Finland do not support this opinion. The length of the fibers will be the same as the length of the unbroken fibers in the chips. The broken fibers are derived from the surface of the chips, where, in the chipping and

splitting process, the fibers in the wood have been cut or broken. This, of course, cannot be avoided, only diminished, by conducting the chipping process in a way which produces as uniform and well-shaped chips as possible.

Most of the so-called "mush" in the pulp is explained by the presence of medullary rays—tubes connecting the pith with the surface of the tree—which, being brittle and having very thin walls, are easily broken up into small pieces. Being bulky they can easily be detected under the microscope, but their total weight is insignificant compared with that of the real fibers.

The length of the trachied cells in the pulp wood usually varies between 1 and 5 mm., and consequently the length of the fibers in the pulp varies within the same limits, except that the "mush" may contain broken fibers and pieces of medullary rays, which are considerably less than 1 mm. in length. The following table (Table 4) gives an example of how the fibers may fall into different classes of length, if the mush is disregarded.

TABLE 4

Mill	I	II	III	Ideal
	%	%	%	%
0.5—1.0 mm.	9.64	11.06	8.19	0.68
1.1—2.0 mm.	25.54	32.92	29.09	3.25
2.1—3.0 mm.	34.18	34.24	37.82	16.10
3.1—4.0 mm.	24.50	19.90	20.58	51.15
4.1—5.0 mm.	6.14	1.89	4.32	24.96
5.1 mm. and up.....	...	...	...	3.85
Average length	1.87 mm.	1.75 mm.	1.91 mm.	3.36 mm.

The three first-named brands are well-known strong pulps. The "Ideal" is produced in the laboratory, and contains no broken or otherwise damaged fibers.

Testing Chemical Purity of Pulp

The methods for investigating the chemical purity of the pulp can be divided into three classes, namely:

1. Methods for determining the percentage of cellulose by removing the lignin and other non-cellulose compounds and weighing the residue.

2. Methods for determining the percentage of lignin by dissolving the cellulose and weighing the residue.

3. Methods for estimating the percentage of lignin, by letting certain chemical agents react upon the lignin in the fibers under exactly defined conditions, and determining either the consumption of these agents, or the time of reaction, or the colors produced.

Practically all the methods used in the pulp industry for investigating the purity of the fibers belong to the last-mentioned class. The methods belonging to the first two classes are more adapted for examining the wood and other raw materials, and are mainly used in scientific research. Among these the most exact and best suited for the determination of cellulose, is the classical method of Cross and Bevan, according to which the material to be tested is successively treated with chlorine gas and a solution of sodium sulphite; the treatment being repeated if necessary.

A convenient method for the direct determination of lignin in wood and other ligneous materials is that of Willstätter and Zechmeister.[3] According to this method, the material is treated with concentrated hydrochloric acid, which dissolves the cellulose, leaving a residue of brown insoluble lignin, which is washed and dried.

I must refrain from discussing here more fully these and other methods of determining directly the cellulose and lignin because there are methods of more immediate interest to the pulp trade which have to be dealt with.

The amount of bleaching powder consumed in the bleaching process, generally speaking, varies directly with the percentage of lignin in the fibers, provided that the bleaching process is carried out with the smallest possible loss of active chlorine. Consequently the consumption of chlorine in the bleaching process is a measure of the chemical purity of the fibers. The bleaching properties of the pulp being the only point in this connection which interests the buyers, the majority of chemical tests employed in the pulp trade are so chosen as to indicate this qualification of the pulp.

Sindall and Bacon in their book called "Testing of Wood Pulp," give a description of a laboratory method for determining the bleaching properties of pulp. According to this method a series of parallel tests, with the same amounts of pulp, but progressively increasing quantities of bleaching solution, are simultaneously carried out. The bleaching properties of the pulp are calculated from the test, which shows the desired color of pulp with the least amount of bleaching solution. It is a good practical test, and has the advantage of directly showing the amount of chlorine necessary for bleaching the pulp, but on the other hand it takes a good deal of time and work and is not very exact. Moreover, it is not suitable for pulps which are very hard to bleach, or unbleachable.

The same authors have described a titration method according to which a weighed sample of pulp mixed with water is treated with a suitable excess of bleaching solution for either 10 to 12 hours at room temperature, or 3 hours at 40 degrees centigrade. The solution is filtered off and the unconsumed bleach titrated in the filtrate with standard arsenite solution. If a considerable excess of bleach is found in the filtrate the test has to be repeated, with an excess of only 1 per cent or at the most 2 per cent of bleach. This test is simpler to carry out than that mentioned previously, but it does not save any appreciable amount of time, especially if the test has to be repeated.

Several methods have been published with the view of simplifying the determination of the chemical purity of the pulp and shortening the time necesary for the test. They are practically all based on the same principle, namely, treatment of the pulp with an excess of an oxidizing agent and determining the amount of the agent consumed under exactly defined conditions.

Use of Oxidizing Agents

In the methods of Wrede,[3] Sieber,[4] and Enso,[5] the last named a modification of the first two methods, frequently used in Finland, calcium hypochlorite (bleaching powder) is used as the oxidizing agent. In the method of Johnsen and Parsons,[6] potassium permanganate is used as the oxidizing agent, and in that of Tingle,[7] bromine is employed for the same purpose. The last-named method is moreover distinguished from the other methods by the cellulose being dissolved in hydrochloric acid before the oxidizing agent is added.

All the methods mentioned above, especially those of Enso and Tingle, are very convenient, and can be carried out in less than two hours, but they have the same disadvantage of giving results which cannot be directly used for calculating the consumption of bleaching powder in the bleaching process. This follows from the fact that the reaction between the pulp and the oxidizing agent is not a stoichiometric process, but, on the contrary, the greater the excess of the oxidizer, the more of it is consumed. Consequently all methods using an excess of the oxidizing agent give too high figures of consumption for easy-bleaching pulps, as compared with strong pulps, because the excess of the oxidizing agent is very much smaller when testing the latter. There is

[3] Richard Willstätter and Laszlo Zechmeister. Berichte. 46, 2,401. (1913.)

[3] Wrede. Papier Zeitung. 34. 806. (1909.)

[4] Rudolf Sieber. Zellstoff-chemische Abhandlungen. No. 111 (1920). Zellstoff und Papier. No. 7 (1921).

[5] Publication XX, p. 12 of Central Laboratory, Helsingfors. The Enso test is carried out in the following way: 10 grams air-dry pulp (90 per cent dry) is torn by hand into small pieces and put into a 2,000 cc. porcelain dish together with 250 cc. of water. The thoroughly soaked pulp-pieces are rubbed between the hands to a homogeneous mass. This is transferred quantitatively to a 1,000 cc. flask and 100 cc. n/4 bleach liquor added, containing 0.886 grams active chlorine. The total alkalinity of the added solution should correspond to 20 cc. n/10 alkali, which is determined according to Schwalbe-Sieber, and is regulated with lime water and sulphuric acid. The flask is closed with a rubber stopper, and is put for one hour, without any preheating, in a water bath at a constant temperature of 40 degrees C., and is stirred frequently. The unconsumed active chlorine is then titrated directly in the pulp solution with n/4 arsenite solution. Iodide starch paper is used as indicator. The difference between the added amount of n/4 bleach solution (100 cc.) and the consumed amount n/4 arsenite solution (x), gives, when multiplied by 0.0886 the chlorine number of the pulp in per cent. Formula:

$$\text{Enso Chlorine number} = (1{,}000 - x) \times 0.0886.$$

[6] Bjarne Johnsen and John L. Parsons. Zellstoff und Papier, No. 11, 259 (1922).

[7] Tingle. Journal of Industrial and Engineering Chemistry, 14 (1922), 40.

another factor which accentuates the defects of these methods, that is the speed of reaction which quickly decreases with the diminution of the excess of the oxidizing agent. The result is that a strong pulp may be only partly bleached at a point when an easy-bleaching pulp is already over-bleached, and its cellulose partly turned into oxy-cellulose. As the amount of the oxidizing agent used in the above-mentioned tests must be calculated to suffice for even the strongest pulps, which may consume up to three or four times as much as the easiest bleaching pulps, the latter will consequently come in contact with an excess of several hundreds per cent of bleach. This explains why the figures obtained by these methods cannot be directly compared with figures from the actual bleaching process, in which the excess of bleach is usually kept within narrow limits.

Mr. Bergman,[8] the director of the Central Laboratory in Helsingfors, has introduced a method for examining the chemical purity of the pulp, in which he overcomes these difficulties. After ascertaining the approximate degree of cooking of the pulp, by Tingle's or other methods, two parallel tests, with the same quantity of pulp, but progressively increasing amounts of active chlorine, are simultaneously carried out under exactly the same conditions. The excess of chlorine is ascertained in the usual way, in samples of the respective solutions, with a standard arsenite solution, and the percentage of chlorine consumed in each test is calculated. From the percentages of chlorine consumed in two parallel tests, a chlorine number, characteristic of the pulp under investigation, can be calculated by means of a special formula. This number indicates the amount of chlorine which the pulp would consume under the test conditions if no excess of chlorine were used. Experience shows that the so-called Bergman chlorine number fairly closely corresponds with the actual consumption of chlorine in bleaching the pulp on the large scale. This is, of course, a great advantage of the method, as compared with the others. Another advantage of the method is that it gives fairly comparable results both for easy-bleaching and strong pulps. A disadvantage is that it requires a good deal of time and work. The Bergman number varies for easy-bleaching pulps from 2 to 4, for strong pulps from 6 to 14, and for extra strong pulps from 16 to 22. As can be seen from these figures, the scale of the Bergman chlorine number is sufficiently large to indicate even minor variations in the quality of the pulp. In its continuous control of Finnish pulps, the Central Laboratory is using the Bergman, Enso and Tingle methods in conjunction with each other.

Before I leave this subject, I will mention a quick method used along with the other tests, in many Finnish mills, namely the Roschier[9] method. In this method, a weighed amount of pulp is dropped into a standard solution of potassium permanganate, vigorously shaken, and the time until the total disappearance of color in the solution, is taken with a stop-watch. The harder the pulp the quicker the color disappears, and the easier bleaching it is the longer it will take. The time or reaction varies from 20 seconds for the extra strong pulps, up to 100 seconds and more for the easiest bleaching. Roschier's method is easily and quickly carried out, but it is not exact, and cannot be used for comparing pulps from different mills; although as a running control in any one mill, where the conditions, generally speaking, are the same, it can be used to advantage.

I have not the time to go more deeply into other methods suggested or used in the pulp trade for determining the degree of chemical purity of the pulp, but even from the above cursory account it can be seen that a great amount of interest and work has been devoted by the chemists to this important subject.

The diversity of methods used in the different countries and mills is apt to create confusion, and it is therefore of importance that some method or methods should be generally adopted as standard methods. In order to obtain reliable and comparable results, it is absolutely necessary that the test should always be carried out in exactly the same way, as even a slight alteration in one of the conditions of the test may considerably influence the final result.

Rayon Pulp

The sulphite pulps used in the artificial silk industry are generally investigated as to their content of Alpha cellulose. The method usually employed is that of Jentgen, according to which the pulp is treated for half an hour with a cold solution of 17½ per cent sodium hydrate, which dissolves other chemical compounds of the pulp, and leaves the alpha cellulose intact. For the paper industry this test is of little importance.

The color of the bleached pulp can easily be graded by comparing a sample of the pulp with specially prepared standard colors. The committee on sulphite pulp of TAPPI recommends (*Paper*, November, 1916) an apparatus consisting of six standard disks revolving at 2,500 r.p.m., the disks are covered with plaster-of-paris, or a mixture of this and magnesia, and colored with progressively increasing amounts of chromate of potassium. Disks of the pulp to be investigated are attached to the standard disks, and examined when revolving under a strong suitable light. So far as I know, no method has been developed which can be adapted for investigating the color of all grades of unbleached sulphite pulps. The main difficulty in connection with it is that the dominant shades of the different sulphite pulps vary from yellow to brown and gray.

The cleanliness of the pulp is still estimated by the old method of counting the dark fibers and spots, and calculating on a certain weight of pulp. The details as to the conditions of light, thickness of sheet, minimum size of spots counted, and so on, vary considerably in different countries, and even in different mills. No method has so far been generally adopted.

One of the most important properties of the pulp is the strength of its fibers, and much attention has been paid during recent years to means for determining it. The old way of estimating the strength of the fibers by testing a sheet of pulp from a bale, either by tearing it with the fingers, or by other means, has been found inadequate. Researches carried out by the Central Laboratory in Helsingfors clearly show that the strength of a sheet of pulp depends on how hard it has been pressed in the machine, or even in the bales, but not on the strength of the fibers. This is explained by the fact that the fibers in a sheet of pulp are so loosely joined together that they merely slip, but do not break, when the sheet is torn. The harder the pulp is pressed, the more closely the fibers are interlaced, and consequently the stronger the sheet.

Rühlemann[10] has published a very interesting article on researches in the strength of the fibers of an easy bleaching sulphite pulp, by testing them individually with an apparatus used for testing cotton fibers. He came to the astonishing result that half-bleached fibers with an average length of 3-4 mm. had a strength of 13.85 g. on the average, with a stretch of 8 per cent. If Rühlemann's figures are correct, they show that the actual strength of the unbeaten fibers is only utilized to a small degree in the strength of the paper. Rühlemann's method, though of great theoretical interest, is not adapted for practical use. It is

[8] G. K. Bergman. The Finnish Paper and Timber Journal, No. 4, 1922. The Bergman method is as follows: Two or preferably three samples of dry pulp, each weighing 10 g. are well mixed with distilled water, as described in connection with the Enso test, and progressively increasing quantities of bleaching solution are added, so calculated that an excess of active chlorine in each case is left at the end of the test. The mixtures are diluted with water so that the pulp constitutes 3½ per cent of the solution. The alkalinity of the solution, as compared with the active chlorine, must be in the proportion of 0.085 to 1, expressed in normalities. After a thorough and rapid mixing, the substance is warmed up to 40 degrees C. and kept at this temperature for 5 hours in a water bath, and stirred occasionally, after which the excess of active chlorine is ascertained in the usual way, in samples of the solutions, and the result, the Bergman chlorine number is calculated from two tests as follows: If a and b denote the respective quantities of chlorine used, when a is bigger than b. Cl_a and Cl_b denote the amounts of chlorine consumed, $k = a - b$, and $m = Cl_a - Cl_b$, then the chlorine number can be calculated from the following formula:

$$Cl = \frac{Cl_a \; k - a.m}{k - m}$$

[9] Helmer Roschier. Zellstoff und Papier, No. 8, 1922.

very laborious, and even if several hundred fibers from each lot of the pulp are tested the results cannot be very accurate, if we consider that one gram of sulphite pulp contains something like 3½ million fibers, corresponding to 3½ billion in a ton. Moreover, Rühlemann's method ignores the short and broken fibers, which cannot be tested with his apparatus.

All the methods so far used in the pulp trade are based on forming the pulp into sheets, and testing the strength of them. These methods necessarily give only the relative strength of the pulp, but not the actual strength of the individual fibers. This is sufficient for the paper maker, because the strength of the pulp only interests him as far as it affects the strength of the paper he is producing.

TAPPI Strength Testing of Pulp

The different methods used are characterized by the way in which the pulp is treated before it is formed into sheets. The simplest method is that suggested by Cameron,[31] and recently modified by the Technical Association of the Pulp and Paper Industry,[32] according to which the pulp in unbeaten condition is thoroughly mixed with water, and formed into sheets which are pressed under high pressure, dried and tested as to their strength. The low strengths of the sheet prepared in this way show that the fibers are only loosely joined together, and that they merely slip, but do not break, when the sheet is torn. Though, to some extent, the figures obtained by this method follow the variations in the strength of the fibers, they cannot be considered as a real measure of their strength. The method is useful for investigating the cohesion between the unbeaten fibers under certain conditions, but not for determining the strength of the pulp.

In order to get results which are more comparable with those obtained in the paper industry, the samples of pulp must be beaten before they are made into test sheets. It has been tried to perform the necessary beating in small laboratory beaters of the same type as used in paper mills but the results have not been satisfactory. Experience shows that it is very difficult and even impossible to imitate with a small scale beater the beating process of industrial scale. Moreover, it is extremely difficult to always reproduce with these small beaters the same kind of beating. Consequently other means of beating the pulp samples had to be employed.

In 1915 the use of a ball mill was suggested by Sutermeister,[33] in an article published in *Paper*. The method recommended by the Committee on Sulphite Pulp of the Technical Association of the Pulp and Paper Industry, published in *Paper*, November, 1916, is mainly based on Sutermeister's method. The Committee recommends as beating apparatus a jar mill manufactured by the Abbé Engineering Company, New York City, consisting of a steel cylinder lined with porcelain. Flint pebbles are used instead of balls. The pulp is beaten for 50 minutes at 60 revolutions of the mill per minute. The beating is effected by the pebbles falling down and knocking against the lining and each other. The jar mill is convenient to handle, but has the disadvantage of many fibers being broken through the rough contact between the pebbles and the lining. The lining, as well as the pebbles, are quickly worn, which is demonstrated by the percentage of ash in the pulp being greatly increased during the beating. Because of this wear, the volume of the pebbles has to be periodically checked, and if found considerably reduced, brought up to the original figure by the addition of new pebbles. These unavoidable changes in the weight and form of the pebbles, as well as in the condition of their surface and that of the lining, necessarily introduce a factor of uncertainty in the final results. The ash contents of the test sheets, derived from the above-mentioned wear, must also be taken into consideration when aiming at accurate results.

Sheets produced by using the Abbé jar mill according to the method recommended by the Committee on Sulphite Pulp, show a greater strength than sheets made of unbeaten pulp, but as a rule they are still far below the strength of paper which can be produced from the same pulp in a paper mill when properly handled. This is explained by the fact that the degree of beating of the pulp, after 50 minutes treatment in an Abbé jar mill, is lower than the degree of beating usual in paper mills for better grades of paper. In addition more fibers are broken in the jar mill than in a careful beating in a modern mill beater.

The Lampén Mill

The above-mentioned disadvantages of the Abbé jar mill are avoided in a ball mill developed in Finland. Since 1913 a specially constructed laboratory ball mill (Lampén mill)[34] has been used in the pulp mill of the Tornator Company, for beating the pulp samples, prior to forming them into test sheets. This ball mill consists of a revolving elipsoid shell of bronze, with a single big bronze ball rolling inside. The shell and ball are both made of the same composition, namely 80 per cent copper and 20 per cent tin. The inner surface of the shell, as well as the surface of the ball, is carefully turned and polished. When the pulp is properly diluted with water and free from lumps, the single ball mill works perfectly smoothly without any knocking. The beating is effected by the fibers being pressed and rolled between the ball and the shell. The continuous and smooth contact of the two polished metal surfaces spares the fibers from being unnecessarily cut, but on the other hand, furthers the hydration of the pulp and the formation of fibrillae, both indispensable for obtaining a well-closed and uniform test sheet. Consequently the test sheets beaten in a single-ball mill show, as a rule, considerably greater strength than those beaten in a jar mill, and correspond very closely with the results obtainable in modern mill beaters, especially those equipped with rolls of basalt lava.

The general rule that the strength of the sheet increases with the increasing degree of beating is also true for pulp beaten in a single-ball mill. The strength of the test sheets usually increases until the degree of beating, corresponding to that of grease-proof, is reached. If the beating is continued still further, the strength of the sheet for a period remains practically constant, finally decreasing slowly. According to the original method developed in the Tornator mill, the pulp was beaten until it reached its maximum degree of strength, which, for the unbleached pulps, gives, as a rule, perfectly grease-proof test sheets.

The Central Laboratory in Helsingfors, which for many years has been using the single-ball mill for the investigation of the strength of the pulps, is beating the pulp samples, prior to forming them into test sheets, to a degree of beating of 75 as measured with the Schopper-Riegler apparatus. This degree of beating, though below the actual grease-proof degree gives uniform and well-closed sheets with figures of strength very close to those of grease-proof, and has been adopted for practical reasons. The time necessary for reaching this degree of beating varies from 1½ hours for the easy beating sulphite pulps, to 2¼ hours for the hardest pulps, at 300 r.p.m. of the mill.

Keeping to the same degree of beating seems to give more reliable results than beating the pulp for a certain period of time. An additional advantage obtained by beating the pulp always to the same degree is that the time necessary for reaching it is a good indicator of the beating properties of the pulp. In this connection a useful characteristic of the single-ball mill is brought out, namely that the strength of the test sheets is not appreciably decreased in the case of the pulp being overbeaten.

The forming of the test sheets is of necessity a very important feature in testing the strength of the pulp. The method

[31] Rühlemann. Verein der Zellstoff und Papier-Chemiker und-Ingenieure-Hauptversammlung, 1925. Published by Otto Elsner, Berlin, 1928.
[32] E. Parke Cameron. Pulp and Paper Magazine of Canada, No. 5, 1923.
[33] Paper Trade Journal, Jan. 27, 1927.
[34] Edwin Sutermeister. "Paper," Nov. 10, 1915.
[35] G. K. Bergman, Svensk Pappers-Tidning, No. 10, 1924. H. Schwalbe, Der Papierfabrikant, No. 14, p. 234, 1925.

recommended by the committee on sulphite pulp was to form the test sheets by means of a hand mould. Wilén[19], to whom merit is due for several valuable suggestions, improved the method of forming test sheets by substituting for the hand mould a specially constructed sheet moulding apparatus with deckle frame, screen covered with wire and suction box, and obtained in this way more uniform sheets. In the laboratory of the Tornator Company a sheet moulder, based on the same idea, had been used since 1913, and the same type of sheet moulder with some alterations is still in use in the Central Laboratory in Helsingfors.

Hydraulic Pressing of Sheets

After the sheets are removed from the wire of the sheet mould they must be pressed before drying. According to Sutermeister's method and that of the Technical Association of the Pulp and Paper Industry, the sheets were pressed between felts in a letter press, but nowadays hydraulic presses are generally employed. Investigations carried out by Wilén and Cameron concerning the influence of the pressure on the strength of the test sheet, show that the strength is increased with increasing pressure up to a certain degree, and that the unbeaten pulp is more influenced than the beaten pulp.

The strength of the test sheets prepared under otherwise similar conditions, grows with increasing substance up to a certain point, different for unbeaten and beaten pulps, as shown by the investigations of Wilén, Cameron and the Central Laboratory.

The way of drying the test sheets does not seem to exercise any appreciable influence on the strength, provided that the sheets are slowly dried at a temperature not exceeding 70 degrees C. The sheets must not be allowed to crease during the drying, as a creased sheet gives unreliable results when tested for strength.

In Table 5 are compared the figures of strength in meters breaking length, of four different brands of pulp, obtained by different methods of treating the pulp, prior to forming the test sheets.

TABLE 5

		Unbeaten pulp according to TAPPI	Beaten 50 minutes in Abbé jar mill	Beaten to 75° Sch. R. in single-ball mill
Pulp I.	Strong	3,275	5,595	8,240
II.	Strong	3,375	6,020	7,565
III.	Strong	3,840	6,575	8,280
IV.	Easy Bleaching...	2,130	4,330	6,495

During recent years the original Sutermeister-TAPPI method has been modified and improved with the view of getting more comparable results for the strength and beating properties of the pulp. Samples of the pulp are beaten for varying lengths of time, and the corresponding results as regards the strength, are expressed by means of a curve. The following table (Table 6) illustrates the changes in the beating degree and strength of the test sheets, as a result of prolonged beating in the Abbé jar mill. The pulps are the same as pulps I. to III. in the previous table.

TABLE 6

	50 minutes		1 hr. 40 minutes		2 hrs. 45 minutes	
	Degree Sch. R.	Breaking length	Degree Sch. R.	Breaking length	Degree Sch. R.	Breaking length
Pulp I.	24.5°	5,595	60.5°	6,880	82.0°	6,750
II.	24.5°	6,020	70.5°	6,660	84.5°	6,720
III.	18.5°	6,575	49.0°	7,150	79.5°	7,215

When comparing the last column of Table 6 with that of Table 5 it will be seen that the test sheets beaten in an Abbé jar mill do not come up to the strength of those beaten in a single-ball mill, even if the pulp is beaten to a higher degree.

It has been pointed out above that the strength of the test sheet made of the same pulp may vary considerably with the degree of beating, the type of apparatus used for beating, the substance of the sheet, and the pressure to which it had been subjected. But there are also other factors which affect the strength of the test sheet, for instance, the dilution of the pulp in the sheet mould, and the intensity of suction during the formation of the sheet. Besides these, the moisture of the finished sheet, the length and width of the strip, when using a Schopper tester, have to be taken into consideration. It is not possible for me here to go into the details of the different methods for determining the strength of the pulp, and consequently I have to limit my discussion to their main characteristic features.

Problem of Finding Standard Method

When endeavoring to develop a standard method of testing the strength of the pulp, all details must be carefully considered, and minutely defined. The problem of finding a standard method, which will satisfy all the essential requirements, is by no means easily solved, but, considering the abundant material available to-day, it does not seem to be beyond the bounds of possibilities. It lies in the interest of the British paper industry, which is one of the biggest consumers of pulp in the world, that this method should be found as soon as possible.

[19] K. G. Wilén. The Finnish Paper and Timber Journal, No. 4, 1921.

Paper Testing Survey

SPECIAL INQUIRY No. 109

A member writes: "I have just received a copy of PAPER TESTING METHODS and would like to know how complete a job of paper testing is done by other paper mills. In our mill we test only for "pop," color, basis weight, cleanliness and moisture content. So many subjects are covered in the book that it has occured to me that we are not doing as complete a job as we should.

"We manufacture sulphite specialties."

Answers to this inquiry should give the following data:

1. Kind of paper being made.
2. Control test being made.
3. Special tests made.
4. List of testing equipment (specify manufacturer).
5. What use is made of the results?

This inquiry will be handled under Service to Members plan and all contributing to this report will receive a transcript of the replies. Send responses to

R. G. MACDONALD, Sec., TAPPI,
18 E. 41st Street, New York.

W. E. B. Baker Goes With Stein, Hall & Co.

W. E. Byron Baker, chairman of the Committee on Cellulose of TAPPI, recently resigned his position as chief chemist of the Continental Paper and Bag Mills Corporation to take a new position with Stein, Hall & Co., Inc., 285 Madison Avenue, New York City. Mr. Baker will engage in research and development work on starch, starch products and gums, involving their relationships to cellulose, and technical problems in the improved application of products of starch origin to the various phases of the manufacture and conversion of paper. His work will be of wide scope, covering many starch products, differing in both origin and chemical treatment.

Bryant Paper Co. a TAPPI Corporate Member

In accordance with the established policy of the Bryant Paper Company to contribute its share to the technical advancement of the paper industry it has now become a corporate member of the Technical Association. Bryant Paper Company has achieved a very high reputation as manufacturers of high grade book papers. The line of papers made include coated book, enamel, offset, map, cover, eggshell, writing, index bristol, postcard, absorbent, bible, catalog, poster, music, drawing, half-tone, etc. About 250,000 pounds of paper are made daily. The representative of the Company in the Technical Association will be Grellet N. Collins, who was a former vice-president of TAPPI.

Current Paper Trade Literature

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts and Bibliography of the Technical Association of the Pulp and Paper Industry

Clarence J. West, Chairman

Sulphite Process

Process for the Production of Pulp. Raoul Pictet and F. Tharaldson. Norw. Pat. 35036. Papir-Jour, 15, No. 10, VIII (1927). A change in the process as described in Norw. Pat. 42934 for the preparation of pulp by cooking cellulosic materials with a water solution of sulphur dioxide, at a minimum pressure of 8 atmospheres and a temperature of under 110°C for a part of the time and over for a part of the time. C. E. P.

Process for the Preparation of Practically Lignin-Free Cellulose by the Sulphite Process. I. G. Farbenindustri Aktiengesellschaft Norw. Pat. 44319. Papir-Journ. 15, No. 17, 221 (1927). A very pure cellulose, practically lignin-free, is produced by maintaining as high a concentration of free SO^2 during the entire cook as is present at the beginning, except for the slight reduction which may take place in the digester itself. Cooking is continued until no more bisulphite is present.—C. E. P.

Process for Gassing or Pressure Reduction in Digesters or Similar Apparatus. Einar Morterud. Norw. Pat. 34802 Papir-Jour. 15, No. 14,182 (1927). The cooking liquor is allowed to pass at successive intervals into a container at lower pressure than the digester, thus allowing gas and vapor to escape, and the liquor is then circulated back to the digester.—C. E. P.

Preparation of an Easily Soluble Fast (Dye) Stuff from Sulphite Waste Liquor. I. G. Farbenindustri Aktiegesellschaft, Berlin. Norw. Pat. 34394. Papir-Jour. 15, No. 14, 182 (1927). The concentrated liquor is treated with alkaline reagents, and the resulting product is salted out and dried with or without a vacuum in the usual way.—C. E. P.

Alkaline Process

Change in Alkalinity and the Action of Sodium Sulphide in Alkaline Pulping Processes. - C. Kullgren. Ingeniors Vetenskaps Akademien. Contribution No. 65 (1927) 35 p. Various methods for determining the alkalinity of black liquors were investigated. The customary titration is inaccurate. Electrical conductivity measurements can be used to advantage in certain cases with straight soda cooking. The method of Koelichen of determining the reaction velocity of the decomposition of diacetone alcohol in the presence of alkalies was found to hold at higher concentration than O. I. N.; the values for k were proportional to the concentration of NaOH. In straight soda cooking a marked slowing down of the reaction was found to occur at 130°—150°C. during the temperature rise period, a strong reaction beginning again at about 160°C. No such slowing down was detected with sulphate cooking. This is due to the fact that in the sulphate process NaOH, itself a poor pulping agent, forms S compounds with the lignin, which is preferentially dissolved by the NaOH. The explanation that the alkalinity of the liquor is maintained constant by the hydrolysis of Na_2S cannot hold because of the small quantity present. The article is written in German. —C. E. P.

Process for the Preparation of Pulp. Ramar Syndicate. Norw. Pat. 44, 169. Papir-Journ. No. 15, 196 (1927). A process for the preparation of pulp by cooking large or small pieces of cellulose containing material under pressure with 0.5 per cent. to 3.5 per cent solutions of the sulphates, nitrates, or chlorides, of alkaline earths, alkalies or metals, or combinations of these, after which treatment the pieces are mechanically disintegrated and finally beaten in a hollander.—C. E. P.

Process for Chlorine Treatment of Cellulose-Containing Materials. H. Hjorth. Norw. Pat. 35401 Papir-Jour. 15, No. 14, 182, Aug. 29, 1927. Cellulose of cellulosic material is treated with chlorine gas for bleaching or for purification by allowing a thin layer of the comparatively dry material (about 30 per cent. dry) to come in contact with a stream of chlorine gas in such a way that it is falling freely through the gas a part of the time.—C. E. P.

Utilization of Bark and Wood Waste for the Production of Cellulose. C. Allegre, H. Brunel, G. P. Galinou and J. E. Lauriac. Fr. pat. 622,007, Jan. 20, 1926. The material, after it has been softened in water, is treated with chlorine for 1.5 hrs. in a closed vessel, and is then washed successively with water, sodium sulphite solution, and again with water. The process is repeated as often as is necessary.—A. P.-C.

Pulping Process. D. R. Nanji. Eng. pat. 2680,629. Wood is treated with an alkaline solution of concentration up to 4 per cent. and at high pressures approximating to 10 atmospheres. By making use of relatively low concentration and working at high pressures it is possible to delignify the raw material in about one hour. Material containing pectin and sugars if first treated with a pectin solvent and then to the action of caustic solutions of low concentration at high pressure. The preliminary depectinizing treatment avoids the possibility of staining or coloring the substances on addition of the alkali.—A. P.-C.

Pulping Process. S. D. Wells. Eng. pat. 273,663. Vegetable fibrous materials, such as wood, cereal straws, and grasses, are softened for the preparation of pulp by boiling under pressure with a solution of sodium carbonate to which sulphur is added. The process is carried out at temperatures of 120°C. and above, and the cooking effect approximates that obtained when sulphide or hydrosulphide is used.—A. P.-C.

Opening-Up of Materials Containing Cellulose. I. G. Farbenind. A.-G. Eng. pat. 274,892, July 21, 1927, and Addn. Eng. pat. 276,025, Aug. 15, 1927. No. 274,892. Cellulose of high purity is obtained in good yield by exposing comminuted cellulosic material, e.g., deal shavings, to the action of a current of air that has been heated at 30°C. and passed through 60 per cent nitric acid. No. 276,025. Alternatively, the material, e.g., steamed firwood, is impregnated with warm or cold dilute (10 per cent) nitric acid, freed from excess of acid by draining, and exposed to the action of a current of air at about 50°C. until a test sample is completely disintegrated when boiled with dilute sodium carbonate solution. In both cases the pulp is finally boiled with an alkaline solution.—A. P.-C.

Black Liquors

Caustic Soda Recovery Plant for Waste Liquors from Esparto Grass Digestion. J. Holmes PROC. TECH. SECTION Papermakers Assn. 7, 27-45 (1926). The low heat efficiency of soda recovery units of the usual design is discussed, and a description is given of the Holmes closed system of recovery in which a considerable economy of heat is realized by blowing the digester charge into a closed pressure tank, which also receives the relief steam from the digester during the cook. Feed liquor to the evaporator is withdrawn from the bottom of this tank, and the steam available from the pressure reduction is used to heat the first effect of the evaporator. Heat exchangers are placed in the vapor pipes of the evaporator to effect the transfer of heat to the wash liquor and to fresh caustic liquor. The operation of the vacuum evaporator is dealt with in detail, and emphasis is laid

on the reduction of efficiency caused by air leaks, gases dissolved in the liquor, and scale. The prospect of utilizing the heat, which under the present system is dissipated in the roaster, is also discussed, and it is suggested that, given reasonably efficient plant, the total heat recovered should supply not only the soda recovery plant, but also the digesters.—A. P.-C.

Process for Treating Black Liquor. E. Hagglund. Eng pat. 258,035. The black liquor is heated at 350°C. under a pressure of 150-200 atmospheres to precipitate a larger proportion of the organic matter. After separation of the precipitate, the liquor is distilled to recover methanol and other volatile compounds. Other volatile compounds, chiefly acetone, can be obtained by distilling with superheated steam. The residue is finally causticized with slaked lime to regenerate the caustic soda.—A. P.-C.

Evaporation in Chemical Pulp Mills. H. Austin. Paper Mill 50, No. 43, 18, 20, (Oct. 22, 1927); Pulp and Paper 25, 1439-1440 (Nov. 10, 1927). Brief discussion of the essential features required for efficient evaporator operation and of the manner in which they are embodied in the Scott evaporator.—A. P.-C.

Continuous Chemical Reclaiming in a Modern Soda Pulp Mill. A. Anable. Paper Ind. 9, 1146-1147 (Oct. 1927). Paper Trade J. 85, No. 15, 48-49 (Oct. 13, 1927). A description of the layout of the soda recovery plant of the new mill of the Canadian Cellulose Co. Cornwall, Ont.—A. P.-C.

Recovery of Soda from Black Liquor Produced in Cooking Esparto. W. M. Wallace and J. Mac Gregor. Eng. pat. 281,-035, Sept. 13, 1926. The concentrated, calcined spent liquor is discharged from a furnace on to a travelling grate and delivered into a dissolver of small size fitted with an agitator to break up large pieces and then to a tank communicating both with the dissolver and causticizing pots, into which the liquor is delivered when sufficiently concentrated, a continuous circulation of liquor being possible between the dissolver and the tank.—A. P.-C.

Mechanical

Avoiding Waste in Grinding Pulp. Levi A. Fralick. Paper Mill 50, No. 44, 12, 26, (Oct. 29, 1927). A discussion of the sources of waste in the production of groundwood and of the means of preventing it.—A. P.-C.

Mechanical Pulp and its Physical Property of Wetness. J. H. Mowat. Proc. Tech. Section Papermakers' Assn. 6, 187-204 (1926). The importance of grinding temperature on the character and wetness of groundwood and the equal importance, from the papermakers' standpoint, of a knowledge of the degree of wetness are emphasized. Experiments have established that mechanical pulp after immersion in water for some days shows increased wetness. The addition of 1 per cent of yeast (on the weight of fiber) to a 5 per cent suspension of mechanical pulp caused after 18 hours at 18° to 21°C. An increase in wetness of 136 percent, dropping after 53 hours to a net increaseof 91 per cent.—A. P.-C.

Process for the Manufacture of Pulp. W. H. Mason, Norw. Pat. 43962 Papir-Journ, No. 9 128 (1927). Chipped lignocellulosic material which has been "exploded" to a fibrous form is treated with chemical reagents to produce pulp for paper.—C.E.P.

Arrangement for Fastening Pulp Stones on Their Axles. K. Klimpke. Swed. Pat. 61568 Svensk Papers-Tidning, 30, No. 14, 423 (1927). The invention consists of providing a ring so attached to the periphery that it is unnecessary to displace it in removing the stone.—C.E.P.

Beating

Effect on Cellulose Fibers of Treatment in the Papermaker's Beater. J. W. Rowe et al. World's Paper Trade Rev. 88, REV. 88, 2058, 2060 (Dec. 23). 2104-2110, 2150, 2152 (Dec. 30, (1927). 89, 24-30 (Jan. 6, 1928). The "wetness" or "hydration" developed in fibers on beating were studied by determining the rate of evaporation of water from disks made of unbeaten pulp and of pulp beaten to varying degrees. Plotting the rate of evaporation from unbeaten pulp against the moisture content showed that: (1) so long as the gage of water remaining in the pulp is above a certain minimum (66 per cent in the case of the puplp used in this investigation), the rate of evaporation is uniform. (2) This uniform rate is uniform regardless of the size of the disk. (3) Neither the initial uniform rate of evaporation nor the positions of the angles in the curves are altered by previously soaking the disk in water (up to 11 days). (4) The remainder of the curve (for unbeaten sulphite) below the minimum moisture content mentioned in (1) consists of three straight-line portions, each representing a period during which the rate of evaporattno decreases uniformly as the sample gets drier. The horizontal portion of the curve is considered to represent evaporation of the water held mechanically between the interlaced fibers; the first angular point marks the completion of the evaporation of this moisture and the first inclined straight line represents evaporation of the free water within the interior of the disk and the central canal of the fibers; the last angle in the curve marks the point at which water begins to evaporate from the interior of the cellulose, i.e. from the infinitely small spaces between the molccules themselves. Watr is thus held in the disk by three different sets of mechanism: (1) free water which is not in any way under the influence of molecular or surface forces, (2) water under the influence of surface forces only, (3) water in the interior of the cellulose, i.e., actually distributed amongst the cellulose molecules as if in a state of solution. Arguments in support of the above theory are discussed in the light of experience with other materials and it is concluded as the most probable assumption, that the lowest angle of the curve represents the "hydration of cellulose," as it corresponds to the maximum percentage of water that is held within the cellulose itself and is characteristic of the cellulose. Evaporation tests carried out on pulps beaten for increasing periods showed that the moisture content at the angle of the curve taken above as representing the "hydration" of the cellulose increased with beating time up to a maximum, after which further beating caused it to fall again. The following explanation is suggested: as the beating action progresses the pulp gets broken up more and more finely until it is so fine that the fibers pass between the roll and bedplate without being subjected to any real beating action; thereafter the fibers are merely being circulated in contact with water and commence to dehydrate. The tendency of pulp to dehydrate on being left in contact with water was also demonstrated by leaving in water pulp samples which had been beaten for various periods, and in every case the hydration point on the curve was found to fall. It was found that the viscosity of sulphite wood pulps is not lowered by any degree of beating likely to be used in the manufacture of paper. Hence, hydration produced by beating is not due to an increased degree of colloidal dispersion, and it is suggested that the factor causing hydration on beating is a change similar to that from the crystalline to the amorphous state. Attempts to confirm this assumption experimentally by means of X-ray diagrams of the unbeaten and beaten pulp were unsuccessful. —A. P.-C.

Beater Design. F. P. Folsom. Paper Mill 50, No. 49 9, 36 (Dec. 3, 1927); Paper Trade J. 85, No. 23, 40, 42 (Dec. 8, 1928). A discussion of the merits of the Dayton High Speed Beater.—A. P.-C.

Air Improves the Work of the Beater. A. M. Hoffman. Paper Trade J. 85, No. 14, 55 (Oct. 6, 1927). In the Stuart pneumatic bedplate a draft space is provided between two sections of the regularly spaced steel blades, and compressed air is blown into this space. The air prevents the pulp from interfering with the free movement of the beater roll over the bedplate, assists in mixing the mass, and helps to break up pieces of broke or hard bunches of stock without in any way reducing the strength of the fiber. Practice has confirmed the theory advanced by the inventor that the draft space causes the stock to travel faster and that the fibers are crossed and their positions disturbed, the stock coming out cool and uniform.—A. P.-C.

Marcy Rod Mill in the Paper Industry. Sidney D. Wells. Paper Trade J. 85, No. 17, 115-116 (Oct. 27, 1927). A description of the construction, operation and performance of the

mill. The mill at the Port Angeles, Wash., plant of the Paraffine Companies, Inc., was found to operate most satisfactorily with pulp at a consistency of 7.5 to 8.5 per cent; and under the conditions at that plant made possible a savings in power of from 50 to 70 per cent over present methods with standard type of beater and jordan. When the stock retains sufficient waste acid from cooking to cause discoloration of the pulp, this can be eliminated by using stainless steel lining and rods.—A.P.-C.

Beater Tackle. Herbert Simonds. Paper Trade J. 85, No. 23, 44 (Dec. 8, 1927); Paper Mill 50, No. 50, 24, 26 (Dec. 10, 1927). A discussion of the advantages of "alcumite" (an acid-resisting copper alloy), of corrugated fly bars and of open-center bedplates..—A. P.-C.

Witham's New Beater. Geo. S. Witham, Jr. U. S. pat. 1,639,917, Aug. 23, 1927; Paper Trade J. 85, No. 26, 45-46 (Dec. 29, 1927). The beater is characterized by three main features: (1) the motor is connected directly to the beater roll, and the parts are connected in such a manner that the roll and motor may be adjusted together toward and from the bed plate without disturbing the connection between them; (2) the doctor blade is mounted with respect to the roll that unbroken stock passing between the roll and the bedplate is cut off clean and is deflected outwards from the roll; (3) the fly bars are constructed in one piece with the body of the roll, and of such material (preferably manganese steel) that the roll can be made lighter than usual without sacrificing strength, thus allowing the roll to be driven at a higher speed, and at the same time the bars are shaped so as to speed up the circulation of the stock.—A. P.-C.

Effect of Hydrogen Ion Concentration of the Hydration of Cellulose. Howard W. Morgan and C. E. Libby. Paper Trade J. 85, No. 19, 55-59 (Nov. 10) No. 20, 52-59 (Nov. 17, 1927). After a review of the subject experiments are described leading to the following conclusions: (1) hydrogen ion concentration has a definite effect on the hydration of cellulose. (2) The effect noted with sodium carbonate is not due to the sodium ion concentration. (3) With cotton cellulose a minimum hydration is obtained with pH values ranging from pH 4 to pH 4.5 and with pH values close to 10.5. (4) With cotton cellulose an increase in concentration of sodium carbonate and ammonium hydroxide causes an increase in hydration. (6) Strength tests give a more accurate measure of hydration than slowness tests. (7) The effect of pH on the hydration of sulphite pulp was the same as on the hydration of cotton cellulose to the extent that pH values below that of distilled water caused a decrease in hydration; but it develops a minimum hydration between pH 8 and pH 9, at which cotton cellulose shows maximum hydration, and it showed maximum hydration at pH 10.7, at which the cotton cellulose hydration curve indicated a minimum.—A. P.-C.

Hydration of Cellulose in Papermaking. James Strachan. Proc. Tech. Section Papermakers Assn. 6, 139-167 (1926). From a study of the behavior of highly compressed blocks of vulcanized rag paper, as representing in many ways the behavior of individual fibers, evidence is adduced in support of the theory that the hydration of cellulose during beating is a purely physical phenomenon, cellulose exhibiting all the properties of an elastic gel whilst differing from other elastic gels in that it is porous and contains considerable quantities of absorbed gases. Results are given showing the effect of pressure, vacuum, specific external surface, temperature, and dissolved substances on the velocity of imbibition of water by cellulose. Pressure has a greater accelerating action than vacuum, but the rate of increase of imbibition falls very considerably for pressures above 75 pounds per sq. in.; increase in temperature causes dehydration, but in a negligible degree below 40°C. Increase in specific external surface increases the velocity of imbibition proportionately, even when the increased surface is due in part to swelling of the fibers, as is the case after prolonged immersion; it is this increase in specific external surface, chiefly by fibrillation, that is responsible in a large degree for the hydration effect of beating. Alum, though showing initially an accelerating action, later retards imbibition; caustic soda accelerates or retards imbibition depending on the concentration; sulphuric acid is a more satisfactory accelerator, particularly at a concentration of 0.00125 molar. The Schopper-Riegler tester is unsatisfactory as an indicator of the degree of hydration of pulp, a more reliable method being to determine the quantity of water retained by the pulp under a definite standard pressure.—A. P.-C.

Bleaching of Sulphite Pulp. Ragnar Bergquist. Svensk Pappers-Tidning No. 23,486 (1927). Easy bleaching sulphite pulp was bleached at 28°C. with calcium hypochlorite solutions whose hydrogen ion concentrations had been adjusted to values ranging from pH 1 to 13. Longer time is required for alkaline bleaching than acid. The alkalinity of the bleach solution tend towards a constant value as the reaction proceeds. Bleaches that initially had a pH of 3 or above had changed to pH 11.0-11.5 at the end. No significant differences were found in the ash content of alpha—and beta—cellulose of the pulps bleached at the different hydrogen ion concentrations. Copper numbers were somewhat higher in the acid bleached pulps. Although the hypochlorous acid has considerable bleaching properties the most active agent in the bleaching solution is the hypochlorite ion (ClO^-). Bleaching of sulphite pulp should be carried out at pH of 10 or greater; acid bleaching should not be attempted except under very careful analytical control—C. E. P.

Bleaching

Bleaching of Sulphite Pulp. L. Rys. Paper Trade J. 85, No. 18, 61-67 (Nov. 3, 1927). During the bleaching of sulphite pulp with hypochlorite solution, chlorination takes place the end products of the reaction going into solution; whether insoluble chlorination products are first formed was not determined. The amount of organically combined chlorine is higher the higher the lignin content of the unbleached pulp. The experiments described indicate that the chemical equilibrium during bleaching can be expressed by the reversible equation $2NaOH + Cl_2 \leftrightarrows NaClO + NaCl + H_2O$, the left side representing chlorination and the right side oxidizing conditions. The proportion between oxidation and chlorination reaches and maintains a practically constant value under similar conditions, which supports the theoretical explanation already given. The time necessary for a given consumption of available chlorine increases as the chlorination decreases. Although the acidity or alkalinity was not closely followed during the experiments, it appeared that under the conditions used there was tendency to approach and maintain a condition of, or nearly approching, neutrality. Though the color relations of the pulps were not determined, it was easy to see that the color was degraded by the action of the free chlorine and also by the addition of chloride ion. It may be considered that increasing the intensity of chlorination without a corresponding increase in oxidation results in a resinification of the lignin, which makes the hydrogen or hydroxyl-ion concentration important. Contrary to the results of Schwalbe and Wenzl, chlorates were found to take no part in the bleaching of sulphite pulp. The presence of chlorates in the bleach liquors has no appreciable effect on the chemical equilibrium during the bleaching reaction, and neither the physical conditions of bleaching nor the chemical composition of the bleached pulp are altered by its presence. Contrary to the results of Wenzl, the presence of acetates was not found to influence the bleaching action materially, so far as the bleaching time, color of the waste liquor, and color and chemical properties of the bleached pulp were concerned. With increasing amounts of acetate, a very slightly increased chlorination and an increased acidity of the waste liquor was found. The amount of ash decreased as the acidity of the waste liquor increased. The amount of acetates which were used did not appear to cause any salting-out effect such as was suggested by Wenzl. The action of carbonates, bicarbonates and air upon bleach is due only to the changes which they cause in the hydrogen ion concentration, since no changes were observed when the concentrations of carbonate and bicarbonate ions in the bleach were increased.—A. P.-C.

Section of the

COST ASSOCIATION OF THE PAPER INDUSTRY

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Conducted by THOS. J. BURKE, C.A., Sec-Treas

The New Accident Prevention and Compensation Problem*

By Ethelbert Stewart [1]

"A few establishments are reducing their accidents to a remarkable degree and making a tremendous noise about it," says Mr. Stewart. "The remaining small plants—over 90 per cent of the total—are doing practically nothing for safety work, saying nothing and having rather startling increases in accidents." The small plant presents a most perplexing accident problem.

The industrial accident-prevention problem, as well as the workmen's compensation problem, that we are facing most seriously today is the problem of the small establishment.

The large concerns are not only able but find it profitable to spend the money that is required to equip their plants with safety devices and to install safety methods and schemes which reduce their accidents practically to a minimum. Corporations of this type are practically all self-insurers, and their employees are therefore thoroughly protected in case of accident.

The serious fact, however, is that over 40 per cent of the manufacturing establishments in the United States employ from 1 to 5 persons each, and practically 28 per cent of the manufacturing establishments employ from 6 to 20 wage earners each.

The average in the former group is 2.7 wage earners per establishment; the average in the second group is 11.2 employees per establishment. The total number of employees in these two groups is practically 824,000 workers. It is in these small establishments that accidents are on the increase.

It is not the purpose here to go into the details of causes of increased accidents in smaller plants. As a general proposition it is due to the tendency to push production to the highest possible point by means of improved machinery, new mechanical appliances, conveyors, power hoists, power trucks, and by speeding up the workers. These new devices are not accompanied by the same safety equipment that the large corporations provide when they install the same devices. There is seldom a safety organization in the small plant. The manager and the superintendent or foremen are not acquainted with modern safety rules, and the plants are too small to have a real safety man.

An enormous amount of money is being spent on safety work, and it is having a tremendous effect in the way of accident prevention, but it is being spent in and by the large plants; and the large plants are comparatively few in number. Only nine-tenths of one percent of the manufacturing establishments employ from 501 to 1,000 wage earners each, and the average of employees in this group per establishment is 690. The next higher group, employing over 1,000, constitutes only one-half of 1 per cent of the total number of establishments; yet these employ more than 24 per cent of all employees and have an average of 2,194 workers each.

We are therefore faced with a peculiar situation—a very few establishments doing an enormous amount of safety work and making an enormous amount of noise about it and really reducing their accident rates to a very wonderful degree; on the other hand, the great majority of plants—over 90 per cent—doing nothing or practically nothing in the way of safety work and saying nothing about it, and having a rather startling progressive increase in accidents.

A Substitute for Charity

With the passage of the workmen's compensation acts in nearly all of the States of the Union we settled down to a smug reliance upon the operation of these laws to take care of the destitution that had formerly resulted from such accidents. Workmen's compensation legislation was put through the various state legislatures easily because everybody knew that somebody was having to pay for the results of industrial accidents. The injured workman and his family were being taken care of by charitable organizations and the charitable organizations were getting their money from business men and from persons of wealth who were charitably inclined; or they were being thrown upon the taxpayers, through outdoor relief funds and through almshouses.

So the general public was pretty well prepared for a specific proposition to provide some legal remedy through which the injured worker should be cared for, in part at least, by the industry in which he was engaged at the time of the accident, and thus the burden be distributed over the whole population by allowing the employer to include the insurance premium or the cost of workmen's compensation in his general cost, just as he did taxes and fire insurance, and make it a part of the price of the commodity produced and spread the burden over the entire consuming public.

Methods of Carrying Risks

Once this legislation was on the statute books we settled back with a sigh of relief that all our social troubles, from that source at least, were at an end.

* National Safety News.
[1] U. S. Commissioner of Labor Statistics.

The machinery to take care of these risks assumed three forms—self-insurance, private organizations of insurance carriers, and state insurance funds, whether competitive or monopolistic. The private insurance organizations group has with the lapse of time split into two groups—the mutuals and the stock insurance companies.

Now let us see what has happened. The large employers of labor, which do not comprise more than 2 per cent of the total number of establishments, have become self-insurers. The next group—which still comprises a very small percentage of employers—have formed mutual insurance organizations to carry their risks on a cooperative basis. The great mass of employing establishments, which employ 20 people or less, were left for the stock companies and the state funds. Of course I do not mean to say that the stock companies and the state funds do not get a reasonable share of the larger plants; nevertheless the fact remains, that the cream of the insurance business is in the hands of self-insurers and mutual companies.

The insurance companies find that with the high accident rate in small plants and the increased accidents in small plants, the small-plant accident insurance taken by itself is a losing game.

New York State's Experience

Take, in the State of New York, the experience of all insurance carriers combined-stock companies, mutuals, and state fund. Consolidation of the two years 1924 and 1925 affords a fair sample of what is happening. Twenty-five per cent of the firms insured were paying the minimum premium in their class which minimum varies according to the class. From this group the premiums earned amounted to $1,830,630 or 2.14 per cent of the total premiums earned. But the losses sustained in this group were 2.15 per cent of the total losses sustained and 61.8 per cent of the premium carried.

But this is not so startling as in the next group, which is composed entirely of small plants, where the premium paid is more than the minimum, but less than $25 per year. This constitutes practically 17 per cent of the total number of plants. But note this—that while the premium earned from this group was 1.28 per cent of the total premium earned, the losses paid were 1.97 per cent of the total losses paid, and within this group 94.2 per cent of the premium received was paid back in losses. Of course the remainder does not anywhere near pay the overhead and operating costs.

Group of Small Establishments

In the next group of small establishments, paying $25 and less than $50 premium and constituting practically 17 per cent of the total risks, the premium earned was 2.71 per cent of the total premiums earned, while the loss was 3.97 per cent of the total loss and 89.8 per cent of the premium earned. When you compare these with the higher groups, say the group that pays $30,000 and over in insurance premiums, while this group constitutes only four-hundredths of 1 per cent of the total number of firms the premium earned from this group constitutes 9.2 per cent of the total premiums earned, the percentage of loss was 7.85 per cent of the total losses and 52.4 per cent of the premium earned, you will note the enormous difference in the percental cost of carrying the small plant as compared with the large one.

The result of this is that the stock companies either put the premium rate so high that the small employer can not pay it or they refuse to take the risk in any event. In other words the list of prohibited risks is expanding to cover in many states such industries as coal mining and the smaller type of sawmill, and is gradually tending to exclude all the smaller establishments.

One of the most far-reaching subjects, therefore, in connection with this whole accident-prevention and accident-insurance question is what shall be done in cases of extra hazardous industries and small establishments which the insurance companies refuse to insure and which are not able to quality as self-insurers and which are too widely scattered and too unorganized to form mutual insurance organizations.

A very large number of states report that the situation as regards workmen's compensation insurance for these small plants is steadily growing worse. In Arizona and Utah private insurance companies are required to accept any risk that is offered them. In the states having competitive state insurance funds, the private insurance companies are not compelled to take undesirable risks, but the state fund is so compelled, with the result that the small and expensive risks are thrown into the state fund. This puts the competitive state funds at a disadvantage and may ultimately operate to create a situation where the competitive state compensation insurance fund will have to be supported by general taxation.

The question of compelling private stock companies to accept all insurance business offered has been referred to. This is the law in Arizona, which however, is not entirely protected against certain methods by which it can be side-stepped; in other words, the insurance companies can make the conditions of carrying this undesirable business so unpleasant that the purpose of the law is more or less defeated.

Compulsory Insurance

In Massachusetts they are at present experimenting with a compulsory insurance law for automobile drivers. Every automobile must carry liability insurance. This being compulsory upon the owner of the automobile, it is also made compulsory upon the insurance companies to accept these risks. The insurance companies, however, are partially protected at least by a clause which says if any insurance company has reason to believe that a driver or owner of an automobile is an unfit person to operate a car it can bring this evidence before the state licensing bureau and the license to operate a car will upon sufficient proof be taken from this person. But if the state licensing bureau insists upon issuing the license, then the insurance company must take the risk. The operation of this law will be watched very carefully by those interested in workmen's compensation to see whether or not it can be made applicable to the accident insurance problem here discussed.

Many Employees Unprotected

Of course if the insurance companies can be compelled to carry these small and dangerous risks they will in the nature of things require that the smaller plant give more attention to safety work and take positive and intelligent steps toward reducing their number of accidents. In the meantime, however, we find that in some states in an entire industry—namely, bituminous coal mining—the employees are not insured against the result of industrial accidents, notwithstanding the state law which is supposed to be in effect. Large numbers of employees in other industries are not insured, in fact, notwithstanding the existence of the law and the paper evidence of insurance in some cases.

To the extent that this picture is true, society is fooling itself. We believe that we have secured for the workman at least a reasonable degree of compensation for accidents, enough to keep his family from suffering and to keep them secure from the need of charitable contributions, while as a matter of fact, when an accident occurs they have no protection and are thrown upon public charity just as they were before the enactment of workmen's compensation laws, notwithstanding the fact that the cost of the insurance which society is supposed to have has been charged into the price of the commodities produced and is being paid for by the consuming public. In other words, to the extent to which this picture is true society is paying for something that it does not get, and the purpose of workmen's compensation laws is to that extent being defeated, notwithstanding that it is being paid for.

It must be admitted that for the length of time in which

workmen's compensation laws have been in operation in the United States and for the length of time in which active and intensive accident-prevention work has been going on, we have achieved along both lines most wonderful results. While we may be fairly well satisfied with the record of the past we should not blind ourselves to the fact, that the operation of the laws is developing certain difficulties. The method and plan of our private insurance companies are developing difficulties which seem to me to be inherent in their methods. These produce a cost of doing business which is so great as to develop a premium rate that can be paid only by the largest and wealthiest corporations.

Shipping Container and Folding Carton Costs

By H. L. Miller[1]

I have been asked to talk to you on the cost of shipping container and folding cartons. First of all, however, may I give you a short history of the firm I represent, The Paraffine Companies, Inc. No, we do not happen to be a protege of John D., as many people believe, nor do we manufacture paraffine. The business was originally started by Mr. Beardsley as an oil venture in the late seventies. Later he came to the point where he needed more capital and also the advice of a chemist. He found the man he wanted in Mr. Pierce and in 1883 they formed a partnership. In 1884 the Paraffine Paint Company was formed and operated as such, up until 1917, when the Paraffine Companies, Inc., was organized for the purpose of taking over eight operating companies. At this time the company took over several Board Mills and Converting Plants, of which the Southern Board Mill and the Los Angeles Carton & Container Plant at Vernon were a part.

Tonight we are concerned with the cost of shipping containers and folding cartons. Shipping containers are manufactured from both corrugated and solid fibre board. Corrugated board is two layers of paper board pasted, one on each side of a piece of corrugated straw board; while solid fibre board is three or more plies of paper board pasted together. Folding cartons are made from paper board of different calipers and used for packing and display purposes. I thought that what I have to say tonight might be of more interest if you could see some of the articles we are talking about.

Our cost system is one of simplicity, the details of which are not cumbersome; yet at the same time give us, to a certain degree, what we believe is a fairly accurate average cost. You will note I say "to a certain degree." We know that we have not yet struck the ideal, nor have we begun to scratch the surface toward that goal, but we cannot help but feel that the results obtained by the ideal would in no way justify the necessary expense.

We have what I desire to call a departmental unit operation cost system. By that I mean that the different machines are classed by units; for instance, our two color printing presses are a unit, our one color printing presses are a unit, and the small job presses are another unit. In the three departments of the plant, we have the following units: Folding Box Department, 2 color print presses, single color print presses, job print presses, cylinder cutting presses, Platen cutting presses, automatic gluers, paraffine and britewax machines, finishing and bundling. Corrugated Department: corrugating machine, printing press, scoring and slotting, Swift Combination, taping, bundling. Solid Fibre Department: Pasting Machine, Printing press, scoring and slotting, Swift Combination, Stitching, and bundling.

Please keep these in mind as I will refer to them later in relating to our distribution of labor, as I wish to take up first the question of materials. We keep perpetual inventory records of all raw materials, which consist of paper and straw board, furnished by our own board mills and the following materials which we purchase on the outside. Silicate of soda, used in the manufacture of corrugated and solid fibre board to paste the layers of board together. Cloth Tape, used to tape corrugated cases; Stitching Wire to stitch solid fibre cases and folding suit boxes. Inks and Electrotypes used in printing. Die materials such as cutting rule, cork, etc., used to make dies for cutting operations. Glue used to fasten the sides of cartons. Paraffine used as a protection coat on outside or inside of certain kinds of folding cartons. As the stocks are delivered to the manufacturing floor we receive requisitions, which are deducted from the stock on hand daily. The remaining quantity is checked at the end of each month with the actual stock in warehouses and the value is balanced with the general ledger control.

We come next to the question of labor. By the use of daily time tickets, the operators report their time spent on one or more of the direct labor operations previously mentioned, or on some indirect labor account. The total hours reported by the employee are O. K.'d by the foreman and checked with his clock card and the distribution of his hours is made on the back of his clock card. This distribution of labor is summarized twice a month and charges put through to our factory expense accounts.

Next comes, in my opinion one of the most discussed subjects in cost accounting, that of burden distribution. We keep individual accounts of each burden item and these are distributed to the different departments and operations on an agreed precentage basis. Indirect labor, supervision, 1-2 of office salaries compensation insurance, planning department, personnel department, pension and bonuses are distributed on the basis of direct labor dollars. Depreciation of Machinery, repairs to machinery, taxes and insurance are distributed on the basis of machine values. Depreciation of buildings, repairs to buildings and fuel and heat are distributed on the basis of floor space occupied, while power is proportioned according to the connected horse power. These figures, our factory operating expenses, are then summarized on our cost schedules and gives us our factory costs by departments and operations. From our daily reports we obtain the machine hours and production for each operation or manufacturing unit, which enables us to arrive at the cost per thousand pieces, square feet, lineal inches or impressions, as we may desire.

Let us take an example. We receive a request from a customer for quotations on say 5,000, 10,000 and 100,000 quantities of a certain carton. Our estimating department will plan this order through the factory, figuring how many cartons should be printed on a sheet and what size sheet is necessary to insure the greatest economy. From this they can then accurately figure the amount of board to be used, together with the amount of ink, the cost of electrotypes and all other necessary manufacturing materials.

Next comes the cost of labor and burden, or factory operating costs. From the cost rate schedules we have built up, they obtain the cost per thousand for each operation through which the carton will pass. For instance, let us assume this is a two color job which could economically be put over the two color presses and that the only other operation is die cutting. These operation rates would be used but the cost per thousand cartons would vary according to the number of cartons printed on a sheet, as the rate is established by the number of impressions passing through the two machines. As an example; assume the printing rate is $3.00 per thousand impressions. Say on the 5,000 quantity we would print one on a sheet, so the rate

[1] Paraffine Companies, Inc., Los Angeles, Cal.

would be $3.00 per thousand cartons. On the 10,000 quantity we would print 2 on a sheet, so the rate would be $1.50 per thousand cartons, and on the 100,000 quantity we would print 10 on a sheet, so the rate would be 30c per thousand cartons. One must be careful, however, in determining just how many should be printed on a sheet, since beyond a certain point it is not economical. I believe this is called the Law of diminishing returns, but I am trusting to luck that none of you will ask me to explain it. The estimator will then add his board and other manufacturing materials cost to his operations cost to arrive at the total factory cost of the job. To this must be added sufficient to cover general administrative and selling expenses and a certain percent for profit.

From the foregoing you will undoubtedly appreciate the fact that our costs are in the nature of general averages, but let it be remembered that our business is a specialty line, wherein approximately 90 per cent of our business is special made to order goods and only 10 per cent standard commodity items. This in our opinion immediately eliminates a job cost system, since the cost of one customer's job has no bearing whatsoever on the cost of a job for some other customer. Correspondingly, the infinite variety of boxes we make, with their differing sizes, colors, calipers and quantities, introduces so many variables in each operation that an attempt to get down to fine details results in a top heavy and costly system. Hence our concentration on a very much simplified system.

In closing let me add. We know that our materials cost are accurate and as they will approximate 75 per cent of the total factory costs there will remain about 15 per cent for burden costs and 10 per cent for direct labor costs, and it does not seem that we would be justified in spending a large sum of money to obtain a more detailed distribution of only 10 per cent of our total factory costs.

Howard L. Churchill Speaks on Forestry

GLENS FALLS, N. Y., June 25, 1928.—Howard L. Churchill, head forester for Finch, Pruyn & Co., of this city, gave an interesting address before the local Rotary club on "Reforestation" dealing mostly with European methods observed during a trip abroad. Mr. Churchill made an exhaustive study of reforestation in several countries.

"Europe has some very beautiful and highly productive and useful forests," Mr. Churchill said. "That is a fact which is strongly impressed upon the mind of any American seeing them who is at all interested in woods and in forest products. The most important species are similar to those in the Northeastern States and Canada. Pines, spruces, firs, larches, beeches, maples, birches, ashes, and basswood make up the bulk of the stands in certain localities."

Mr. Churchill dwelt at length upon forest management abroad as he observed it in several countries including France, Germany, Switzerland and Holland. "The systems in use," he said, "have been thought out and worked out with much care. Naturally mistakes have been made. In Saxony which is a spruce country they hoped to get a higher return on the investment by cutting on a short rotation for pulp wood and replanting at once. This worked well for a time and then Dame Nature balked. She refused to grow successive crops of spruce that way and the rate of growth began to fall off rapidly.

New Sample Books of Fabriano Papers

The Japan Paper Company, importer of high grade papers, 109 East 31st street, New York, has just put out two interesting sample books of its Fabriano double and single weight papers. They are intended to show the adaptability of these interesting Italian mould-made papers to either practical or artistic treatment.

These papers have long been noted for their beautiful texture and fascinating color range which give them a wide scope of utility for printing, book-work and advertising.

The sample books were designed and printed by William Edwin Rudge, Inc.

Box Board Production for May

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 3, 1928.—May production of box board, based on reports to the Department of Commerce by 91 firms operating 118 plants (reports for earlier months including four concerns now out of business) was 96.9 per cent of capacity, as compared with 92 per cent in April and 83.4 per cent in May, 1927. In the following table the capacity data vary according to the normal number of working days in each month:

Year and Month	Operation: Inch hours: Capacity	Operation: Inch hours: Operated	Operation: Per cent of Capacity	Production: Short Tons: Capacity	Production: Short Tons: Output	Production: Per cent of Capacity	New Orders: Short Tons	Unfilled Orders (end of month): Short Tons
1927								
January	9,997,400	6,998,505	70.0	240,175	173,629	72.3	194,285	105,669
February	9,597,504	7,583,477	79.0	230,568	189,273	82.1	183,861	102,005
March	10,797,192	8,627,946	79.9	259,389	219,824	84.7	230,065	114,369
April	10,397,296	7,771,040	74.7	249,782	205,589	82.3	197,435	101,861
May	9,997,400	7,836,315	78.4	240,175	200,216	83.4	194,122	93,248
Total (5 mos.)	50,786,792	38,817,283	76.4	1,220,089	988,531	81.0	999,768	.....
1928								
January	9,997,400	7,892,342	78.9	240,175	205,065	85.4	205,549	82,446
February	9,997,400	8,193,593	82.0	240,175	213,066	88.7	216,051	86,780
March	10,797,192	8,855,782	82.0	259,389	227,573	87.7	245,753	94,065
April	9,997,400	*8,311,710	*83.1	240,175	*221,046	*92.0	*211,237	84,513
May	10,397,296	8,721,022	83.9	249,782	241,919	96.9	224,220	73,157
Total (5 mos.)	51,186,688	41,974,449	82.0	1,229,696	1,108,669	90.2	1,102,810	.....

Year and Month	Shipments of boxboard: Short Tons	Stocks of boxboard, end of month: Short Tons	Consumption of waste paper: Capacity: Short Tons	Consumption of waste paper: Consumed: Short Tons	Per cent of Capacity	Stocks of waste paper, end of month: At plants: Short Tons	Stocks of waste paper, end of month: In transit and unshipped purchases: Short Tons
1927							
January	175,528	53,562	232,825	163,337	70.2	163,023	38,062
February	189,032	53,327	223,512	182,322	81.6	158,222	40,602
March	217,876	54,566	251,451	209,730	83.4	155,513	43,789
April	209,944	50,211	242,138	189,942	78.4	147,938	46,314
May	201,788	48,906	232,825	193,077	82.9	149,438	59,289
Total (5 mos.)	994,168	.....	1,182,751	938,408	79.3	.....	.....
1928							
January	198,194	49,172	232,825	190,631	81.8	157,185	62,791
February	211,687	50,490	232,825	194,756	83.6	142,723	60,918
March	237,807	40,424	251,451	209,806	83.4	139,775	47,582
April	*220,248	40,312	232,825	*211,869	*91.0	132,719	47,551
May	235,648	48,906	242,138	220,261	91.0	127,352	46,225
Total (5 mos.)	1,103,584	.....	1,192,064	1,027,323	86.2	.....	.....

* Revised.

International Paper Monthly for June

The June issue of the *International Paper Monthly*, published by the International Paper Company, which is now being distributed contains many interesting articles and illustrations.

There is a four-page illustrated article on "Forestry in the American Expeditionary Forces" by L. R. Lohr, Captain, Corps of Engineers, United States Army, and Editor of *The Military Engineer;* an article entitled "Fire—The Great Enemy" by Honorable W. F. Finlayson, Minister of Lands and Forests of the Province of Ontario; an account of the inspection of the new office building of Lowell Electric Light Company in Lowell, Mass., with exterior and interior views of the structure; and an illustrated article by J. D. Black, director, Bureau of Provincial Information and Tourist Travel, Province of New Brunswick, on how to reach by automobile the Grand Falls, New Brunswick, hydro-electric development of the company.

In addition there are views showing the progress of the construction work on the hydro-electric developments of the company at Grand Falls, New Brunswick, and Kent's Falls, N. Y., and a picture of the booth of New England Power Company at the recent Electrical Exposition at Worcester, Mass.

George Verow Goes With Eaton Paper Co.

LINCOLN, Me., July 3, 1928.—George Verow has resigned his position with the Katahdin Division of the Eastern Manufacturing Company and will become associated with the Eaton Paper Company at Adams, Mass., formerly the Berkshire Hills Paper Company, which will now make paper for the Eaton, Crane & Pike Company, of Pittsfield, Mass.

The Babcock & Wilcox Co.

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DENVER	444 Seventeenth Street
DETROIT	Ford Building
HOUSTON, TEXAS	Electric Building
LOS ANGELES	Central Building
NEW ORLEANS	344 Camp Street
PHILADELPHIA	Packard Building
PHOENIX, ARIZ.	Heard Building
PITTSBURGH	Farmers Deposit Bank Building
PORTLAND, ORE.	Failing Building
SALT LAKE CITY	Kearns Building
SAN FRANCISCO	Sheldon Building
SEATTLE	L. C. Smith Building
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HAVANA, CUBA	Calle de Aguiar 104
SAN JUAN, P. R.	Recinto Sur 51

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FELT bills represent one of the major every day expenses of paper mill operation. Consequently any felt that will last several days longer than the general run of felts becomes a money saving factor of prime importance.

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ORR FELTS

Waste Utilization Committee Meets

"Efficient utilization of waste is necessary for preservation of the industry," said a prominent paper mill executive at a recent meeting of the National Committee of the Pulp and Paper Industry on Waste Utilization and Stream Improvement. The importance of the work of the committee and its value to the industry was emphasized by other speakers at this meeting.

The meeting was held at the Hotel Statler in Buffalo, N. Y., on June 15, John D. Rue, of the Champion Fibre Company, Canton, N. C., recently appointed chairman of the committee, presiding. The meeting was well attended by representatives of both the industry and state officials who constitute the personnel of the committee. In opening the meeting Mr. Rue outlined the functions of the committee and ways and means of carrying on and continuing the work.

Major O. M. Porter, secretary-treasurer of the American Paper and Pulp Association, made a brief statement in regard to the organization of the committee, pointing out that it was composed of representatives from both the industry and state officials, with the view of developing constructive cooperative programs in waste utilization and stream improvement. He indicated that the executive committee of the Association had authorized him to proceed with the raising of funds for continuation of the work.

Reports on Progress

Reports regarding progress of the committee's work and activities in waste utilization and stream improvement in the states of Minnesota, Wisconsin, Ohio, Pennsylvania and Connecticut were presented by representatives from those states. These reports all indicated an excellent spirit of cooperation between the industry and state officials; also that definite progress is being made toward a solution of the problem.

Several instances of utilization of waste to the financial advantage of the industry and with a resultant improvement in stream conditions were pointed out. One mill had been faced with the necessity of drilling a new well to augment its water supply but a program of waste utilization and reduction in the amount of water used had revised their process so that only 60 per cent of the water formerly used was now necessary, thus making drilling of the well unnecessary. The volume of water used in another mill was reduced from 28,000 gallons per ton of product to eight thousand gallons and it is anticipated that this amount will ultimately be reduced to about 3,500 gallons per ton of product.

C. M. Baker Submits Report

The engineer of the American Paper and Pulp Association, C. M. Baker, submitted a report which recommended:

1. Policies for cooperative effort.
2. Organization of state committees representative of the industry to coordinate local, state and nation activities.
3. Organization of research in waste utilization and stream improvement in various specialized groups of the industry; specifically
   (a) Sulphite mills, by the appointment of a special or sub-committee of the National Committee.
   (b) Paper board mills, through a committee to be appointed by the Paper Board Industries Association.
4. Standardization of procedure in analytical determinations, and the reporting of statistical data relating to the subject of waste utilization and stream improvement.

Committee's Policy and Objectives

The committee's policy and objectives as prepared by Chairman Rue and adopted by the meeting follow:

1. To foster but not to direct research.
2. To correlate such research data as may be released by the several research agencies.
3. To cooordinate research agencies and where possible to aid in the elimination of unnecessary duplication of effort.
4. To cooperate with the Forest Products Laboratories in developing and coordinating research in waste utilization and stream improvement.
5. To assist in the establishment of state committees where such committees may be desirable, and to coordinate the activities of such committees in the several states.
6. To coordinate the activities of groups of mills manufacturing the same produce, as e.g., sulphite mills, straw board mills, de-inking plants in book mills, etc.
7. To cooperate with other agencies in avoiding undesirable legislation and securing legislation that will tend to promote sound practice in the reduction of waste and improvement of streams.
8. To act as agency for the dissemination of information released by the research agencies.
9. To act as agency for the exchange among the mills of information regarding improved operating methods insofar as such can be released for general use by the industry.
10. To provide the Executive Committee of the National Association with a budget of expenses. The Committee on Waste Utilization and Stream Improvement is not to be held responsible for the raising of funds, that being recognized as a function of the Executive Committee.

It was agreed by the committee that the organization of state committees representative of the industry should be continued, in cooperation with local organizations and interests. The importance of these committees in coordinating the activities of the national committee with local officials was emphasized.

Cooperative Research

In the development of cooperative research in the various specialized groups of the industry, it was pointed out that the straw board industry has made great progress in a solution of their problem by cooperative research initiated over a year ago. At a recent meeting of the Paperboard Industries Association, at the suggestion of the engineer of the American Paper and Pulp Association, a committee representative of this group was authorized to take up this problem for the paperboard mills.

One of the outstanding actions of the committee's meeting at Buffalo was authorization of the appointment of a committee representative of the sulphite mills to review developments in the utilization, treatment and disposal of sulphite waste liquors, to foster research on those problems and to submit to the committee from time to time reports of their findings including constructive plans for developing the coordinated support from the sulphite industry for recommended measures directed toward adequate solution of those problems.

Procedure in Analytical Procedure

The subject of standardization of procedure in analytical determinations brought out considerable discussion. Mr. Stevenson, of Pennsylvania, stated that, after considerable research, they had adopted a method which had proved satisfactory to the mills involved. Mr. Warrick, of Wisconsin, questioned the applicability of this method to sulphite waste liquor. It was agreed that there were two particular lines of standardization: first, regarding analytical procedure, which is primarily a matter of consideration for the various state sanitary engineers and the American Public Health Association, and second, standardization of units within the industry, which is primarily a matter for consideration of the industry itself, and might well be referred to an appropriate committee of the Technical Association of the Pulp and Paper Industry.

A budget for the second year's activities of the engineer of the American Paper and Pulp Association was endorsed and recommended by the committee to the Executive Committee of the American Paper and Pulp Association.

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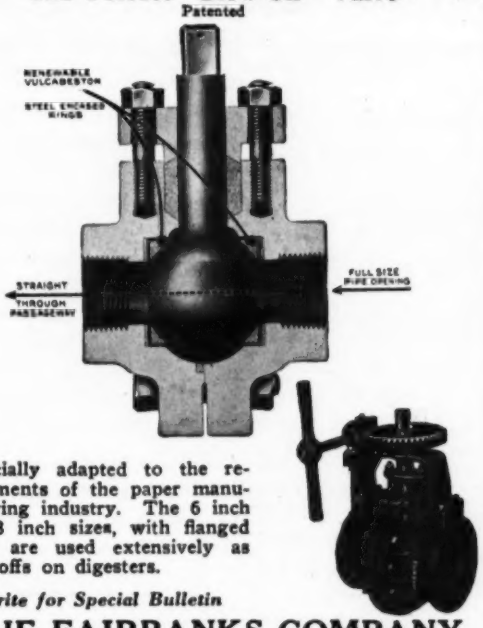

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A few months after installation they wrote of the Tannate Belt, "It has proven itself to be very ideal." And a report a short time ago says it has not yet been taken up and they are very "enthusiastic" about it.

The great increase in the use of Rhoads Tannate Watershed Beltng by paper mills during the past few years, and its highly satisfactory service under various paper mill conditions prove it one of the best and most economical means of power transmission in this industry.

Why not try Tannate on your next difficult installation? It is sold with the Rhoads Service Guarantee.

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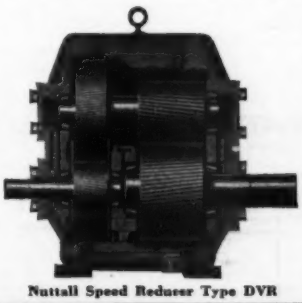

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LYMAN TUBE & SUPPLY CO.
Montreal, Toronto and Vancouver, Canada

Imports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JUNE 30, 1928

SUMMARY

Cigarette paper .....6 bls., 122 cs.
Wall paper .....42 bls., 4 cs.
Paper hangings .....23 bls., 10 cs.
News print .....157 rolls, 9 bls.
Printing paper .....65 bls., 182 cs.
Wrapping paper .....1 roll, 16 bdls., 21 cs.
Packing paper .....21 cs.
Pergamyn paper .....16 cs.
Coated paper .....10 cs.
Surface coated paper .....124 cs.
Gold coated paper .....10 cs.
Baryta coated paper .....82 cs.
Metal paper .....13 cs.
Colored paper .....7 cs.
Tissue paper .....17 cs.
Writing paper .....39 cs.
Decalcomania paper .....52 cs.
Drawing paper .....7 cs.
Filter paper .....20 bls., 18 cs.
Note paper .....2 cs.
Basic paper .....26 cs.
Straw board .....456 rolls
Miscellaneous paper .....388 rolls, 17 bls., 158 cs.

CIGARETTE PAPER

P. J. Schweitzer, Pr. Monroe, Marseilles, 62 cs.
M. Spiegel & Son, Pr. Monroe, Genoa, 6 bls.
Standard Products Corp., Suffren, Havre, 60 cs.

WALL PAPER

W. H. S. Lloyd & Co., Franconia, Liverpool, 18 bls.
W. P. Nelson, A. Ballin, Hamburg, 1 cs.
Alfred Peats Co., A. Ballin, Hamburg, 1 cs.
S. Stern Stiner & Co., A. Ballin, Hamburg, 2 bls.
R. F. Downing & Co., A. Ballin, Hamburg, 1 bls.
Globe Shipping Co., A. Ballin, Hamburg, 8 bls.
J. E. Bernard & Co., A. Ballin, Hamburg, 4 bls.
Baldwin Universal Co., Dresden, Bremen, 1 cs.
F. J. Emmerich, Cedric, Liverpool, 5 bls.
F. A. Binder, America, Bremen, 4 bls.
R. H. Macy & Co., Mauretania, Southampton, 1 cs.

PAPER HANGINGS

A. C. Dodman, Jr., Inc., Franconia, Liverpool, 2 bls.
W. H. S. Lloyd & Co., Minnetonka, London, 6 cs., 21 bls.
Whiting & Patterson Co., Inc., Olympic, Southampton, 2 cs.
Whiting & Patterson Co., Inc., Mauretania, Southampton, 2 cs.

NEWS PRINT

Perkins Goodwin & Co., Dresden, Bremen, 48 rolls.
O. Ray, Stockholm, Gothenburg, 109 rolls, 9 bls.

PRINTING PAPER

National City Bank, A. Ballin, Hamburg, 65 bls.
Perkins Goodwin & Co., A. Ballin, Hamburg, 72 cs.
C. Steiner, Rotterdam, Rotterdam, 26 cs.
H. Reeve Angel & Co., Inc., Sparreholm, Kotka, 84 cs.

WRAPPING PAPER

F. C. Strype, Arabic, Antwerp, 8 cs, 1 roll.
Globe Shipping Co., Rotterdam, Rotterdam, 13 cs.
American Exchange Irving Trust Co., Westphalia, Hamburg, 16 bdls.

PACKING PAPER

S. Gilbert, A. Ballin, Hamburg, 11 cs.
International F'd'g Co., A. Ballin, Hamburg, 10 cs.

PERGAMYN PAPER

F. C. Strype, Westphalia, Hamburg, 16 cs.

COATED PAPER

Globe Shipping Co., A. Ballin, Hamburg, 10 cs.

SURFACE COATED PAPER

American Express Co., A. Ballin, Hamburg, 27 cs.
P. C. Zuhlke, Arabic, Antwerp, 45 cs,
Gevaert Co. of America, Arabic, Antwerp, 52 cs.

GOLD COATED PAPER

F. Murray Hill, Dresden, Bremen, 10 cs.

BARYTA COATED PAPER

Globe Shipping Co., Dresden, Bremen, 10 cs.
J. H. Schroeder Banking Corp., Dresden, Bremen, 52 cs.
Globe Shipping Co., S. Cordoba, Bremen, 20 cs.

METAL PAPER

Hensel Bruckman & Lorbacher, Pr. Harding, Bremen, 13 cs.

COLORED PAPER

S. Gilbert, Pr. Harding, Bremen, 6 cs.
Levi Sondheimer & Co., Mauretania, Southampton, 1 cs.

TISSUE PAPER

F. C. Strype, Franconia, Liverpool, 15 cs.
G. W. Sheldon & Co., Minnetonka, London, 2 cs.

WRITING PAPER

Public Shipping Co., Providence, Marseilles, 27 cs.
B. Altman & Co., Dresden, Bremen, 2 cs.
A. Goodman & Co., Suffren, Havre, 3 cs.
Charta Corp., Suffren, Havre, 7 cs.

DECALCOMANIA PAPER

C. W. Sellers, A. Ballin, Hamburg, 6 cs.
C. W. Sellers, Dresden, Bremen, 3 cs.
C. W. Sellers, Pr. Harding, Bremen, 3 cs.
L. A. Consmiller, Pr. Harding, Bremen, 8 cs.
B. F. Drakenfeld & Co., Cedric, Liverpool, 22 cs.; 10 cs. (duplex).

DRAWING PAPER

G. W. Sheldon & Co., Minnetonka, London, 4 cs.
H. Reeve Angel & Co., Inc., Carinthia, London, 3 cs.

FILTER PAPER

H. Reeve Angel & Co., Inc., Carinthia, London, 18 cs.
A. Giese & Son, Olympic, Southampton, 20 bls.

NOTE PAPER

H. Reeve Angel & Co., Inc., Carinthia, London, 2 cs.

BASIC PAPER

W. J. Byrnes, Arabic, Antwerp, 26 cs.

STRAWBOARD

Haas Bros., Rotterdam, Rotterdam, 104 rolls.
A. Vuyk, Rotterdam, Rotterdam, 352 rolls.

MISCELLANEOUS PAPER

Goodyear Tire & Rubber Co., Franconia, Liverpool, 11 cs.
Steiner Paper Corp., Rotterdam, Rotterdam, 20 cs.
E. Dietzgen & Co., Rotterdam, Rotterdam, 28 cs.
Weil & Rosengart, Rotterdam, Rotterdam, 3 cs.
W. von Doorn, Rotterdam, Rotterdam, 54 cs.
Cheramy, Inc., Ile de France, Havre, 3 cs.
Standard Products Corp., Ile de France, Havre, 22 cs.
S. Gilbert, America, Bremen, 14 cs.
M. M. Cohen, Stockholm, Gothenburg, 17 bls., 388 rolls.
Vogue Hats, Suffren, Havre, 3 cs.

RAGS, BAGGINGS, ETC.

Brown Bros. & Co., West Carnifax, Alexandria, 70 bls. rags.
Green Hamilton & Co., Western Ally, Rotterdam, 161 bls. cotton waste.
W. Loewenthal & Co., Western Ally, Rotterdam, 30 bls. rags.
G. M. Graves & Co., California, Glasgow, 54 bls. paper stock.
Brown Bros. & Co., California, Glasgow, 65 bls. paper stock.
Bank of New York, A. Ballin, Hamburg, 70 bls. rags.
Gallagher & Ascher, Minnetonka, London, 82 bls. rags.
B. D. Kaplan, Carinthia, London, 66 bls. rags.
Spaulding Fibre Co., Sacandaga, Antwerp, 149 bls. rags.
B. D. Kaplan, Cedric, Liverpool, 115 bls. rags.
National City Bank, Cedric, Liverpool, 33 bls. rags.
M. Snedeker Corp., Cedric, Liverpool, 109 bls. thread waste.
A. W. Fenton, Inc., Westphalia, Hamburg, 45 bls. rags.
Overton & Co., America, Bremen, 85 bls. bagging.
A. W. Fenton, Inc., America, Bremen, 66 bls. rags.
Interstate Trust Co., Winona, Naples, 204 bls. rags.
Banco Com'l Italiane Trust Co., Winona, Naples, 143 bls. rags.
C. R. Spence & Co., Bellhaven, Dublin, 126 bls. rags.
Darmstadt Scott & Courtney, Bellhaven, Dublin, 59 bls. waste paper.
C. B. Richard & Co., Bellhaven, Cardiff, 80 bls. rags.
A. H. Searle, Inc., Bellhaven, Cardiff, 96 bls. bagging.
A. H. Searle, Inc., London Corporation, London, 186 bls. rags.
Castle & Overton, Inc., Suffren, Havre, 195 bls. rags.
Union Bank & Trust Co., Suffren, Havre, 54 bls. bagging.
Banco Com'l Italiane Trust Co., Blair, Catania, 56 bls. rags.
Guaranty Trust Co., Blair, Palermo, 158 bls. rags.
Banco Com'l Italiane Trust Co., Cabo Espartel, Genoa, 291 bls. bagging.
C. B. Richard & Co., Cabo Espartel, Leghorn, 424 bls. rags.
S. Birkenstein & Sons, Cabo Espartel, Barcelona, 109 bls. rags.
Brown Bros. & Co., Cameronia, Glasgow, 9 bls. rags.
C. R. Spence & Co., Cameronia, Glasgow, 65 bls. rags.
Darmstadt Scott & Courtney, Pr. Harding, Bremen, 15 bls. rags.
W. Steck & Co., Pr. Harding, Bremen, 66 bls. jute card waste.
Spaulding Fibre Co., Pr. Harding, Bremen, 143 bls. rags.
W. Schall & Co., Pr. Harding, Bremen, 39 bls. rags.
Castle & Overton, Inc., Missourian, Japan, 20 bls. rags.

OLD ROPE

Brown Bros. & Co., Arabic, Antwerp, 67 bls.
Brown Bros. & Co., Rotterdam, Rotterdam, 53 coils.
Chase National Bank, Oscar II, Copenhagen, 370 bls.
Brown Bros. & Co., Winona, Genoa, 190 coils.
W. Schall & Co., Cabo Espartel, Marseilles, 59 coils, 29 bls.
S. Birkenstein & Sons, Cabo Espartel, Barcelona, 36 bls.

CASEIN

Atterbury Bros., cIn., Bonheur, B. Aires, 134 bags.
T. M. Duche & Sons, Bonheur, B. Aires, 1,251 bags.

WOOD PULP

Castle & Overton, Inc., A. Ballin, Hamburg, 1,740 bls. wood pulp, 268 tons.
E. J. Keller Co., Inc., A. Ballin, ——, 344 bls. wood pulp, 51 tons.
Atterbury Bros., Inc., Oscar II, Oslo, 500 bls. wood pulp
J. Andersen & Co., Consul Olsson ,Hernosand, 6,600 bls. sulphite, 1,100 tons.
E. M. Sergeant & Co., Consul Olsson, Hernosand, 3,600 bls. sulphite, 600 tons.
J. Andersen & Co., Consul Olsson, Soderhamn, 2,000 bls. sulphite, 400 tons.
Bulkley Dunton & Co., Consul Olsson, ——, 9,521 bls. wood pulp, 1,854 tons.
M. Gottesman & Co., Inc., Sparreholm, Stockholm, 300 bls. sulphite.
Castle & Overton, Inc., Westphalia, Hamburg, 2,919 bls. wood pulp, 437 tons.
G. S. Kerr Co., Ltd., Polarland, Buctouche, 584 cords wood pulp.
G. S. Kerr Co., Ltd., Polarland, St. Peters, 422 cords wood pulp.
E. M. Sergeant & Co., Stockholm, Gothenburg, 150 bls. dry soda pulp,, 175 bls. sulphite.
J. Andersen & Co., Casper, Sarpsborg, 1,050 bls. sulphite, 175 tons.
Bulkley Dunton & Co., S. Cordoba, ——, 1,250 bls .sulphite.
Bulkley Dunton & Co., Steel Mariner, ——, 3,000 bls. wood pulp.
Woodpulp Service Corp., Stavangerfjord, Oslo, 800 bls. kraft pulp.

WOOD PULP BOARDS

Lagerloef Trading Co., A. Ballin, Hamburg, 530 bls., 104 tons.
Lagerloef Trading Co., Sparreholm, Kotka, 84 bls., 4 rolls.

WOOD MEAL

The Burnet Co., Western Ally, Rotterdam, 1,000 bags, 50,000 kilos.

(*Continued on page 74*)

West Virginia Pulp and Paper Company

Manufacturers of

SUPERCALENDERED and MACHINE FINISHED BOOK and LITHOGRAPHIC PAPERS

Offset, Envelope, Bond, Writing, Cover and Music Paper, High Grade Coated Book, Index Bristol, Post Card, Kraft and Label Papers.

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For St. Croix Paper Co. ..... 1200 H.P.
For Brown Paper Mill Co. ..... 3430 H.P.
Central Paper Co., Muskegon, Mich., four orders, total ..... 3100 H.P.
Philadelphia Paper Mfg. Co., Phila., three orders, total ..... 2400 H.P.
Jessup & Moore Paper Co., Phila., four orders, total ..... 4750 H.P.
Ontario Paper Co., Ltd.
For Daily Newspaper Co., North Tonawanda, N. Y. ..... 2034 H.P.
Filer Fibre Company, Filer City, Mich. ..... 1500 H.P.
John Lang Paper Co., Philadelphia, Pa..... 416 H.P.
Bayless Manufacturing Corp., Austin, Pa..... 1300 H.P.
Northern Board & Paper Co., San Francisco, Cal., two orders, total ..... 400 H.P.
Crown Willamette Paper Co., San Francisco, Cal., two orders, total ..... 750 H.P.
Delaware Hard Fibre Co., Wilmington, Del., two orders, total ..... 920 H.P.
Kieckhefer Container Co., Delair, N. J. ..... 1800 H.P.

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Bicarbonate of Soda
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Special Alkali

The Success of *Your* Product

The success of your product depends, primarily, on the uniform quality of the raw materials used in your manufacturing processes. That is why it is vitally important to use Alkalies of the highest grade. Diamond quality never varies.

Diamond Alkali Company

Pittsburgh, Pa., *and Everywhere*

ALKALI

Imports of Paper and Paper Stock

(*Continued from page 72*)

BALTIMORE IMPORTS.

WEEK ENDING JUNE 30, 1928

Congoleum Nairn Co., Sac City, Antwerp, 2,249 bls. rags; 310 bls. bagging.
W. H. Masson, Sac City, Antwerp, 142 bls. old rope.
J. Andersen & Co., Casper, Sarpsborg, 1,548 bls. sulphite, 258 tons.
Chase National Bank, Arkansas, Oslo, 800 bls. wood pulp.
Chemical National Bank, Arkansas, Oslo, 900 bls. wood pulp.
Castle & Overton, Inc., Westerwald, Germany, 3,836 bls. wood pulp.
Castle & Overton, Inc., Turpin, Germany, 152 bls. rags.
Woodpulp Service Corp., Stureholm, Sweden, 900 bls. sulphite pulp.
Bulkley Dunton & Co., Stureholm, ——, 750 bls. wood pulp.
Bulkley Dunton & Co., Copenhagen, ——, 1,875 bls. wood pulp

PHILADELPHIA IMPORTS.

WEEK ENDING JUNE 30, 1928

E. A. Stone, Sacandaga, Antwerp, 181 bls. rags.
Equitable Trust Co., Sacandaga, Antwerp, 220 bls. rags.
Fidelity Trust Co., Sacandaga, Antwerp, 110 bls. rags.
J. M. Hagy Waste Works, Sacandaga, Antwerp, 28 bls. rags.
S. Spector & Co., Sacandaga, Antwerp, 104 bls. rags.
Lagerloef Trading Co., Sparreholm, Kotka, 265 rolls wood pulp boards; 205 bls. wood pulp boards.
Neidich Process Co., Sparreholm, Helsingfors, 131 cs. tissue paper.
Chase National Bank, Winona, Naples, 150 bls. rags.
J. B. Moors & Co., London Corporation, London, 68 bls. rags.
W. Schall & Co., London Corporation, London, 217 bls. rags.
Phila. Girard National Bank, London Corporation, London, 76 bls. rags.
American Express Co., London Corporation, London, 98 bls. rags.
Tradesmans National Bank, Mercer, Rotterdam, 237 bls. rags.
E. J. Keller Co., Inc., Mercer, ——, 690 bls. rags.
J. Andersen & Co., Casper, Sarpsborg, 150 bls. sulphite pulp, 25 tons.
Chase National Bank, Arkansas, Copenhagen, 200 bls. wood pulp.
Chemical National Bank, Arkansas, Copenhagen, 2,400 bls. wood pulp.
Bank of New York, Arkansas, Copenhagen, 398 bls. wood pulp.
Castle & Overton, Inc., Indep. Hall, France, 538 bls. rags.
Castle & Overton, Inc., Seattle Spirit, Germany, 36 bls. rags.
Castle & Overton, Inc., New York City, England, 82 bls. rags.
Castle & Overton, Inc., Coahoma County, Belgium, 48 bls. rags.
Castle & Overton, Inc., Westerwald, Germany, 2,098 bls. wood pulp.
Castle & Overton, Inc., Turpin, Germany, 190 bls. rags.

NORFOLK IMPORTS.

WEEK ENDING JUNE 30, 1928

E. Butterworth & Co., Inc., Sac City, Antwerp, 139 bls. bagging.
Darmstadt Scott & Courtney, Sac City, Antwerp, 104 bls. bagging.
H. Reeve Angel & Co., Inc., Casper, Kotka, 301 rolls news print; 197 bls. news print.
Lagerloef Trading Co., Casper, Kotka, 1,005 bls. wood pulp boards, 188 tons.
Parsons & Whittemore, Inc., Casper, Raumo, 753 rolls news print.
The Borregaard Co., Inc., Casper, Hurum, 2,400 bls. sulphate pulp, 400 tons.
The Borregaard Co., Inc., Casper, Bamble, 2,400 bls. sulphate pulp, 400 tons.
J. Andersen & Co., Casper, Sarpsborg, 300 bls. sulphite, 50 tons.
Champion Coated Paper Co., Bonheur, B. Aires, 1,007 bags casein.
Castle & Overton, Inc., Westerwald, Germany, 174 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING JUNE 30, 1928

Brown Bros. & Co., Norwegian, London, 237 bls. old rope; 69 bls. waste paper.
Crocker Burbank Co., Norwegian, London, 415 bls. waste paper.
T. D. Downing & Co., Norwegian, London, 187 bls. rags.
Brown Bros. & Co., Idaho, Hull, 207 bls. paper stock; 222 coils old rope.
G. W. Millar & Co., Idaho, Hull, 95 bls. paper stock.
W. Barnet & Son, Inc., Idaho, Hull, 9 bls. rags.
Philadelphia Nat'l Bank, Winona, Marseilles, 334 bls. rags.
E. J. Keller Co., Inc., Mercer, Rotterdam, 183 bls. rags.
Buck Kiaer & Co., Inc., Arkansas, Copenhagen,
Chase National Bank, Arkansas, Copenhagen, 2,160 bls. wood pulp.
125 bls. wood pulp.
Perkins Goodwin & Co., Arkansas, Copenhagen, 250 bls. wood pulp.
Chemical National Bank, Arkansas, Copenhagen, 600 bls. wood pulp.
Woodpulp Service Corp., Arkansas, Copenhagen, 160 bls. wood pulp.
Bulkley Dunton & Co., Copenhagen, 2,025 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING JUNE 30, 1928

Castle & Overton, Inc., Syros, Belgium, 220 bls. rags.
Castle & Overton, Inc., Caroline, France, 130 bls. gunny.

MONTREAL IMPORTS

WEEK ENDING JUNE 30, 1928

Bulkley Dunton & Co., Topdalsfjord, ——, 6,075 bls. wood pulp.

T. T. Webster Made Executive Vice-President

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, OHIO, July 3, 1928.—Thomas T. Webster, of this city, who has been identified with the paper trade for some time, has been elected executive vice president of the Associated Traffic Clubs of America, which recently closed at Oakland, Cal.

Mr. Webster has been prominent in the affairs of this organization for several years and assisted materially in promoting its interest, having for a time served as president. He always has demonstrated deep interest in local traffic affairs and in the work of the Miami Valley Traffic Association. Mr. Webster is traffic manager of the George H. Mead Company of this city.

Mexican Paper Mills Handicapped

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., July 2, 1928.—Word has been received here that due to the fact that great scarcity of raw materials has developed because of restrictions placed by the Department of Agriculture of Mexico on the felling of trees, the Mexican paper manufacturing industry is confronted with a difficult problem.

The manufacture of paper in Mexico has been a thriving industry since the latter part of the nineteenth century when two large mills were started. Up to a short time ago, according to the report, the paper mills had an annual output of from 25,000 to 30,000 tons. This production has now been materially reduced. The government, however, insists that the forests shall be protected and has taken steps toward reforestation.

Frank Bogaskie Gets Patent

[FROM OUR REGULAR CORRESPONDENT]

JOHNSTOWN, N. Y., June 25, 1928.—Frank Bogaskie has been granted a patent on a new safety envelope for the mailing or deposit of valuable papers. The envelope cannot be opened without destroying the entire envelope. Mr. Bogaskie, who is deputy county clerk of Fulton county, has been working on the idea for nearly twenty-five years. Application for the patent was made in May, 1927.

The new envelope has a double back with a long narrow paper tube attached to the inner back covered by an overfold and on the outside the regular sealing flap. After the contents have been placed in the envelope the outside flap is sealed with the exception of the right end through which an ordinary riveting instrument is inserted the whole length of the inner paper tube and three brass fasteners placed in position.

American Writing Cares for Old Employees

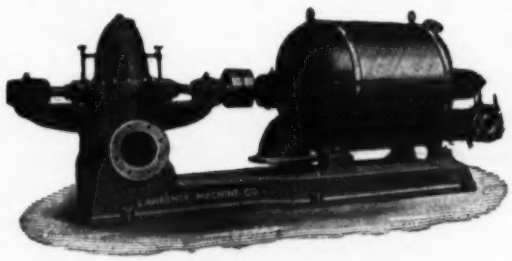
HOLYOKE, Mass., July 3, 1928.—The American Writing Paper Company has started to lay off some of its male employees who are too old and unfit for further work. Some of the men have been given jobs as day watchmen about the mills. The company has created a fund by which employees who have been in the employ of the company for many years and given faithful service, will receive a monthly payment, to be made indefinitely. These payments will amount to practically 25 per cent of their regular wages.

Horizontally Split Casing Double Suction Pumps

LAWRENCE PUMPS

The name protects and guarantees you satisfaction.

We are the original designers and builders of the LAWRENCE PUMP.



Lawrence pumps for all conditions and services. Forty-four years of practical experience with centrifugal pump development places us among the leaders. Our efforts have been rewarded by the acceptance of our product in general.

Thousands of installations and the successful performance of our pumps should be sufficient proof of our ability to handle your pumping problems. Our engineering force is at your command.

Have only Lawrence Pumps, manufactured by the

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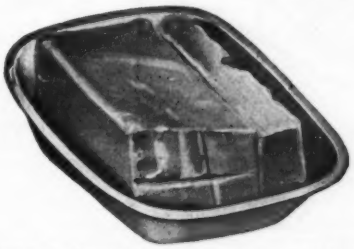
A better dish at a lower price



PAPRUS DISHES are one-piece—rigid as wood—cost less than paper! *Moulded* from pulp without folds or staples. Sterilized. Waterproof. Leakproof. These strong selling points help salesmen sell more butter dishes to grocers, butchers and delicatessen stores. You can increase your business with Paprus Dishes. Write for prices.

Paprus Dishes used as covered container

PAPRUS DISHES

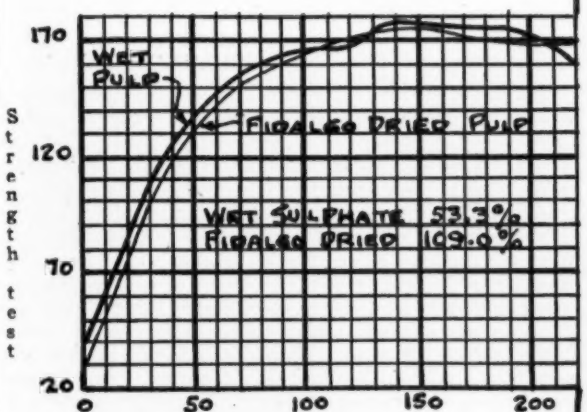
KEYES FIBRE COMPANY, INC.

General Sales Offices: GRAYBAR BLDG., NEW YORK

Factory: Waterville, Maine JOHN M. HART COMPANY, INC., *Manager of Sales*

FIDALGO DRYING SYSTEMS

Wet Pulp Results With Dry Pulp



Curve Illustrating comparison between Wet and FIDALGO Dried in Beating and Strength Tests.

Note how closely the curve on FIDALGO Dried Pulp follows the Wet pulp curve.

High steam economy. Shredded Pulp shipped in Bales.

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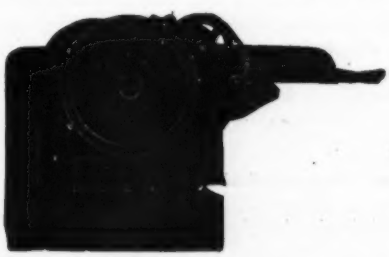
TAYLOR, STILES & COMPANY GIANT REG. U.S. PAT. OFF. RIEGELSVILLE, N.J. U.S.A.

RAG CUTTERS



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Riegelsville, N. J., U. S. A.

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New York Market Review

Office of THE PAPER TRADE JOURNAL,
Tuesday, July 3, 1928.

Trading in the local paper market was rather light during the past week, due to seasonal causes. The industry is in a sound condition, however, and quotations on the various grades are being well maintained at former levels, in most instances. Inquiries for future business are fairly numerous and sales forces of the leading paper houses are mostly optimistic over the future trend.

The news print situation is little changed. Contract supplies are going forward at a normal rate for the season. Production in the United States and Canada averaged 80 per cent of capacity during the past week, according to statistics compiled by the News Print Service Bureau. Prices continue easy and generous concessions are being made on contracts signed for the forthcoming year.

Production of box board is being maintained in satisfactory volume and demand is fairly persistent for the time of the year. Prices remain steady and unchanged. The fine paper market is moderately active while the request for tissues is well up to average. The coarse paper market is exhibiting a sound undertone and wrapping paper is moving in good volume.

Mechanical Pulp

Most of the business transacted in the ground wood market during the past week was along routine lines. Offerings are ample for current requirements. Shipments against contract are going forward with fair regularity. Quotations remain unchanged and the schedule which has been maintained for some considerable time is being maintained, in most instances, shading being infrequent.

Chemical Pulp

The chemical pulp market is in a strong position. Both foreign and domestic producers are well booked ahead on contract and offerings are decidedly limited. Imported and domestic bleached sulphite are in particularly strong request, while most of the other grades of chemical pulp are steady to firm. Inquiries for future business are being received in excellent volume and the future outlook for the market is bright.

Old Rope and Bagging

Both domestic and imported old rope are in steady demand. Prices are holding to schedule and there is little talk of concessions around. Domestic roofing bagging is moving in good volume and foreign bagging is also in improved request. Quotations are generally holding to previously reported levels.

Rags

The domestic rag market was moderately active during the past week. Cotton cuttings continue to move in good volume and roofing rags are also attracting their share of attention. Prices of the various grades are practically unaltered. No radical changes in the rag situation abroad have developed and high prices continue to prevail.

Waste Paper

Mainly due to the inventory period, the paper stock market is rather quiet at present, although competent observers predict that business will improve shortly. The demand for book stock has slackened considerably and prices of the various grades are easier. No. 1 mixed paper is said to be in excellent request from the board mills. Old kraft is fairly active but the demand for shavings is mostly routine.

Twine

The twine market pursues the even tenor of its way. No further developments have been reported and, while demand is light at present, the industry is in a sound position. A general expansion of business is confidently anticipated in the autumn. Prices are holding to previous recorded levels, although it is said that concessions have been made on large orders.

Harry J. Northcott Dead

Harry J. Northcott, manager of sales of the Pejepscot Paper Company, 42 Broadway, New York, died at his home, 450 West 147th street, New York, on June 30, 1928, after an illness of some ten months.

The Pejepscot Paper Company have mills located at Brunswick, Pejepscot Mills, and Lisbon Falls, Maine.

Mr. Northcott started with W. H. Parsons & Co. in 1880, and with the exception of two years has been connected with the Pejepscot Paper Company and its predecessors W. H. Parsons & Co., until his death. He had a very large acquaintance in the paper trade and in his death the Pejepscot Paper Company, and the paper trade in general, have lost a man whose ability was recognized and whose kindliness made him respected and well liked.

Services were held at 2 p. m. Tuesday, July 3, at the funeral chapel at 851 Amsterdam avenue, New York City. Interment was in Greenwood Cemetery.

He is survived by his wife, four sisters, and one brother.

Government Forestry Publication Enlarged

Enlargement of the bi-monthly forestry publication, the Forest Worker, from 24 to 32 pages, is announced by the Forest Service, United States Department of Agriculture. This change will make immediately available to the public much additional forest information of a practical character obtained from Federal, State, and private sources.

Published every two months by the Forest Service, the Forest Worker is designed to give helpful information to owners and managers of forests or farm woodlands, woods workers, and others interested in forestry problems and practices. Each number describes improved methods of protecting and managing forests and woodlands, usable results of research in timber management and timber utilization, forestry work of individuals and organizations, and current movements in various localities for better and more profitable handling of timberlands.

The success which the Forest Worker has met since its inception prompted the increase in the size of the publication. It has been particularly valuable to forest workers in presenting in brief non-technical review the most recent news and developments in forestry in this country, and digests of important foreign investigations and activities in forestry which are not conveniently available from other sources.

The Forest Worker is distributed by the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., at 5 cents per copy or 25 cents for a year's subscription.

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Paper hitherto made without rag stock, can be brought to the high quality goal by the use of Alpha Fibre.

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PULP SALES DIVISION

The B Co. INC. QUALITY PULPS

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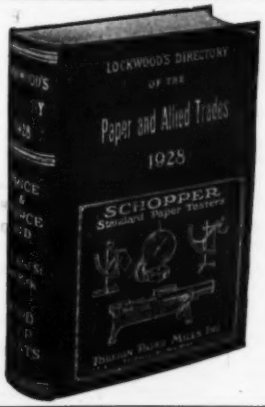

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10 EAST 39th STREET, NEW YORK, U. S. A.

Miscellaneous Markets

Office of THE PAPER TRADE JOURNAL,
Tuesday, July 3, 1928.

BLANC FIXE.—During the past week the blanc fixe market was moderately active. Prices are holding up to former levels in most instances. The pulp is still offered at $40 per ton, in bulk, while the powder is selling at from 3½ cents to 3⅝ cents a pound, in barrels, at works.

BLEACHING POWDER.—While business in the bleaching powder market is quiet, shipments against contract are moving in fair volume. Quotations are holding up to schedule and there is not much talk of concessions around. Bleaching powder is quoted at from $2 to $2.35 per 100 pounds, in large drums, at works.

CASEIN.—Some improvement was noticed in the casein market and prices were somewhat firmer. Offerings of this product are rather scarce. Domestic casein is selling at from 16 cents to 17 cents a pound. Imported casein is quoted at from 16½ cents to 17 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—No radical changes transpired in the caustic soda market during the past week. Prices are holding to schedule. Solid caustic soda is offered at from $2.90 to $2.95 per 100 pounds. The flake and the ground are quoted at from $3.30 to $3.35 per 100 pounds, in large drums, at works.

CHINA CLAY.—Steadiness prevails in the china clay market. Supplies are moving into consumption at a normal rate. Imported china clay is still selling at from $15 to $25 a ton, in bulk, ship side. Domestic paper making clay is quoted at from $8 to $9 a ton, at mine, and pulverized at from $10 to $12 a ton.

CHLORINE.—The undertone of the chlorine market is strong. Contract withdrawals are going forward at a steady pace. Prices remain unchanged. Chlorine is quoted at 3½ cents a pound, in tanks, or multi-unit cars, at works, on contract orders. The spot quotation ranges from 3¾ cents to 4 cents a pound.

ROSIN.—Demand for rosin is persistent and prices are much firmer. At the naval stores, the grades of gum rosin used in the paper mills are now selling at from $9.95 to $10.10 per 280 pounds, ex dock, in barrels. Wood rosin is quoted at from $7.25 to $8.05 per 280 pounds, at southern shipping points.

SALT CAKE.—Conditions in the salt cake market are practically unchanged. Offerings are about sufficient to take care of current requirements. Prices remain unaltered. Salt cake is quoted at from $15 to $17 a ton, in bulk, at works. Chrome salt cake is offered at from $14 to $15 a ton, in bulk, at works.

SODA ASH.—Manufacturers of soda ash report that supplies of this product are being readily absorbed. While competition for new business is rather keen, prices are generally holding to schedule. Contract quotations on soda ash, in car lots, at works, are as follows: in bags, $1.32½, and in barrels, $1.55.

STARCH.—The tone of the starch market is strong and recent advances are being maintained, quotations now being at the highest level for the year. Contract shipments are moving in good volume. Special paper making starch is selling at $4.22 per 100 pounds, in bags, and at $4.39 per 100 pounds, in barrels.

SULPHATE OF ALUMINA.—Business in the sulphate of alumina market is fairly satisfactory. Contract withdrawals continue to move in a normal manner. Commercial grades of sulphate of alumina are quoted at from $1.40 to $1.55 per 100 pounds, in bags, at works. The iron free is offered at from $1.90 to $2.05.

SULPHUR.—The sulphur market is in a strong position. While most of the business transacted was along routine lines, shipments against contract were well up to average for the season. Sulphur is quoted at from $18 to $19 a ton, in bulk, at mine, on contract orders. The spot quotation is $20 per ton.

TALC.—Trading in the talc market was moderately active during the past week. Prices are holding to the level which has prevailed for some considerable time. Domestic talc is still quoted at from $16 to $18 a ton, in bulk, at eastern mines. Imported talc is selling at from $18 to $20 a ton, in bags, ship side.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	11.00	@38.00
Bonds	9.00	@45.00
Writings—		
Extra Superfine	14.00	@32.00
Superfine	14.00	@32.00
Tub sized	10.00	@15.00
Engine sized	8.00	@11.00
News—		
Rolls, contract	3.25	@ —
Rolls, transient	3.25	@ 3.50
Sheets	3.65	@ 3.85
Side Runs	3.00	@ 3.75
Book, Cased—		
S. & S. C.	6.35	@ 7.75
M. F.	6.25	@ 7.75
Coated and Enamel	8.00	@15.00
Lithograph	8.00	@15.00
Tissues—Per Ream—		
White No. 1	.75	@ 1.00
Anti-Tarnish	1.10	@ 1.90
Colored	1.00	@ 2.00
White No. 2	.75	@ .85
Kraft	.90	@ 1.00
Manila	.75	@ .85
Kraft—		
No. 1 Domestic	6.25	@ 6.50
No. 2 Domestic	4.00	@ 4.25
Southern	3.75	@ 4.00
Imported	6.50	@ 7.00
Manila—		
No. 1 Jute	9.00	@ 9.25
No. 2 Jute	7.75	@ 8.50
No. 1 Wood	4.75	@ 5.25
No. 2 Wood	4.00	@ 4.50
Butchers	3.75	@ 4.25
Fibre Papers—		
No. 1 Fibre	5.00	@ 5.50
No. 2 Fibre	4.75	@ 5.25
Common Bogus	2.75	@ 3.00
Screenings	3.00	@ 3.25
Card Middles	4.00	@ 5.00
Glassine—		
Bleached, basis 25 lbs.	13.00	@16.00
Bleached, basis 20 lbs.	15.00	@16.00

(Delivered New York)

Boards—per ton—		
News	47.50	@50.00
Straw	52.50	@55.00
Chip	45.00	@47.50
Binders' Boards	65.00	@67.50
Sgl. Mla. Ll. Chip	52.50	@55.00
Wood Pulp	80.00	@85.00
Container	67.50	@72.50
85 test Jute Liner	57.50	@60.00

Mechanical Pulp

(Ex-Dock)

No. 1 Imported—		
Moist	30.00	@31.25
Dry	32.00	@34.00

(F. o. b. Mill)

No. 1 Domestic	26.00	@29.00
Screenings	15.00	@20.00

Chemical Pulp

(Ex-Dock, Atlantic Ports)

Sulphite (Imported)—		
Bleached	3.65	@ 4.25
Easy Bleaching	2.70	@ 2.90
No. 1 strong unbleached	2.60	@ 2.70
Mitscherlich unbleached	2.65	@ 3.25
No. 2 strong unbleached	2.50	@ 2.60
No. 1 Kraft	2.60	@ 2.75
No. 2 Kraft	2.40	@ 2.50
Sulphate—		
Bleached	3.75	@ 3.85

(F. o. b. Pulp Mill)

Sulphite (Domestic)—		
Bleached	3.40	@ 4.75
Easy Bleaching Sulphite	2.60	@ 2.75
News Sulphite	2.40	@ 2.65
Mitscherlich	3.00	@ 3.70
Kraft (Domestic)	2.70	@ 3.30
Soda Bleached	3.35	@ 3.50
Sulphate Screenings—		
Coarse	.75	@ .85
Refined	1.50	@ 1.65

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—		
New White, No. 1	11.75	@12.25
New White, No. 2	8.00	@ 8.50
Silesias No. 1	7.25	@ 7.75
New Unbleached	10.50	@11.00
Washables	4.25	@ 4.75
Fancy	5.50	@ 6.00
Blue Overall	6.75	@ 7.25
New Blue Prints	5.25	@ 5.50
New Soft Blacks	5.25	@ 5.75
Mixed Khaki Cuttings	4.75	@ 5.25
Pink Corset Cuttings	8.00	@ 8.50
O. D. Khaki Cuttings	5.25	@ 5.75
Men's Corduroy	3.75	@ 4.25
New Mixed Blacks	3.50	@ 3.75

Old Rags

White, No. 1—		
Repacked	5.50	@ 6.00
Miscellaneous	4.50	@ 5.00
White, No. 2—		
Repacked	3.00	@ 3.50
Miscellaneous	2.50	@ 2.75
St. Soiled, White	2.00	@ 2.15
Thirds and Blues—		
Repacked	2.25	@ 2.50
Miscellaneous	1.75	@ 2.00
Black Stockings	3.25	@ 3.75
Roofing Rags—		
Cloth Strippings	1.70	@ 1.80
No. 1	1.70	@ 1.80
No. 2	1.55	@ 1.65
No. 3	1.30	@ 1.40
No. 4	1.25	@ 1.35
No. 5A	.95	@ 1.05

Foreign Rags

New Dark Cuttings	2.50	@ 3.00
New Mixed Cuttings	2.75	@ 3.25
Ord. Light Prints	2.25	@ 2.50
New Light Silesias	7.00	@ 7.50
Light Flannelettes	7.50	@ 8.00
Unbleached Cottons	10.00	@11.00
New White Cuttings	10.50	@11.50
New Light Oxfords	7.00	@ 7.50
New Light Prints	5.50	@ 6.50
No. 1 White Linens	7.25	@ 8.00
No. 2 White Linens	5.50	@ 6.25
No. 3 White Linens	4.50	@ 5.00
No. 4 White Linens	3.00	@ 3.50
Old Extra Light Prints	2.75	@ 3.25
Med. Light Prints	1.90	@ 2.10
Dutch Blue Cottons	2.25	@ 2.50
German Blue Linens	2.50	@ 2.75
German Blue Cottons	2.00	@ 2.25
Checks and Blues	1.75	@ 2.00
Lindsay Garments	1.85	@ 1.95
Dark Cottons	1.55	@ 1.65
Old Shopperies	1.50	@ 1.55
New Shopperies	1.45	@ 1.56
French Blues	2.10	@ 2.25

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—		
Foreign	1.65	@ 1.75
Domestic	1.70	@ 1.75
Wool Tares, light	1.60	@ 1.65
Wool Tares, heavy	1.60	@ 1.65
Bright Bagging	1.60	@ 1.65
Small Mixed Rope	1.25	@ 1.40
Manila Rope—		
Foreign	3.00	@ 3.25
Domestic	3.25	@ 4.00
New Burlap Cut	2.75	@ 3.00
Hessian Jute Threads—		
Foreign	3.50	@ 4.00
Domestic	3.25	@ 3.50

Old Waste Papers

(F. o. b. New York)

Shavings—		
Hard, White, No. 1	3.25	@ 3.50
Hard, White, No. 2	2.75	@ 3.00
Soft, White, No. 1	2.60	@ 2.85
White envelope cuttings	3.25	@ 3.50
Flat Stock—		
Stitchless	1.65	@ 1.75
Overissue Mag.	1.65	@ 1.75
Solid Flat Book	1.55	@ 1.65
Crumpled No. 1	1.30	@ 1.40
Solid Book Ledger	2.00	@ 2.10
Ledger Stock	1.70	@ 1.80
Manilas—		
New B. B. Chips	.65	@ .75
New Env. Cut	2.40	@ 2.60
New Cuttings	1.60	@ 1.85
Extra No. 1 old	1.25	@ 1.35
Print	.75	@ .85
Container	.60	@ .70
Bogus Wrapper	.75	@ .85
Old Kraft Machine Compressed bales	1.80	@ 1.90
News—		
No. 1 White News	1.55	@ 1.65
Strictly Overissue	.80	@ .90
Strictly Folded	.60	@ .70
No. 1 Mixed Paper	.45	@ .50
Common Paper	.30	@ .35

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Dietz Toilet Paper Machines

For making Toilet and Paper Towel Rolls
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Self Adjusting — Easy to Operate

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Manufacturers of Sanitary Crepe Towel Machines, Slitting and Rewinding Machines, Drop Roll Slitting Machines, Photo Mount Beveling Machines, Rotary Card Cutting Machines, etc.
Correspondence solicited

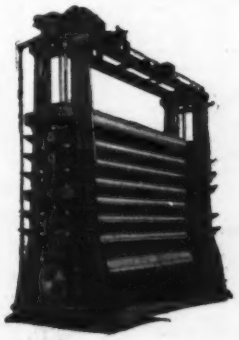
DIETZ MACHINE WORKS

126-128 W. Fontaine Street
Cor. Waterloo St., (between Front & Second St.)
and below Diamond St.
Phila., Penna., U. S. A.

LOBDELL

Chilled Iron Calender and Press Rolls
Automatic Roll Grinding Machines
Improved Micrometer Roll Calipers

LOBDELL CAR WHEEL COMPANY
Established 1836
WILMINGTON, DELAWARE.



Twines

(F. o. b. Mill)

Cotton—			
No. 1	.39	@	.40
No. 2	.37	@	.38
No. 3	.36	@	.37
B. C., 18 basis	.38	@	.40
A. B. Italian, 18 basis	.48	@	.53
Finished Jute—			
Dark 18 basis	.24	@	.25
Light 18 basis	.27	@	.28
Jute Wrapping, 3-6 Ply—			
No. 1	.21	@	.23
No. 2	.20	@	.22
Tube Rope—			
4-ply and larger	.18	@	.19
Fine Tube Yarn—			
5-ply and larger	.23	@	.27
4-ply	.24	@	.28
3-ply	.26	@	.30
Unfinished India—			
Basis	.16	@	.17
Paper Makers Twine			
Balls	.13	@	.15
Box Twine, 2-3 ply	.17	@	.19
Jute Rope	.21	@	.23
Ameri. Hemp, 6	.29	@	.31
Sisal Hay Rope—			
No. 1 Basis	.18	@	.20
No. 2 Basis	.16	@	.18
Sisal Lath Yarn—			
No. 1	.16	@	.18
No. 2	.14	@	.16
Manila Rope	.24	@	.26

CHICAGO

All Rag Bond	.35	@	.41
No. 1 Rag Bond	.25	@	.35
No. 2 Rag Bond	.14	@	.25
Water Marked Sulphite Bond	.09	@	.12
Sulphite Bond	.06¾	@	.11
Superfine writing	.18	@	.24
No. 1 fine writing	.14	@	.18
No. 2 fine writing	.12	@	.14
No. 3 fine writing	.08½	@	.12
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07½	@	.12
Coated Label	.07½	@	.10
News—Roll, mill	.03½	@	.04¼
News—Sheets, mill	.03¾	@	.04¾
No. 1 Manila	.04¾	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.04	@	.04½
No. 1 Kraft	.06½	@	.06½
Southern Kraft	.03¾	@	.04
No. 2 Kraft	.04	@	.04¼
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue—			
24x36 Sheet	.07	@	.07¼
White Tissue—			
20x30 Sheet	.07¼	@	.07½
Boards, per ton— (Delivered Central Territory)			
Plain Chip	37.50	@	41.00
Solid News	47.50	@	—
Manila Lined Chip	55.00	@	—
Container Lined— (Delivered Central Territory)			
85 Test	65.00	@	70.00
100 Test	70.00	@	—

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 Hard White	2.80	@	2.90
White Env. Cuttings	3.60	@	3.70
No. 1 Soft Shavings	2.50	@	2.60
No. 1 Mixed	1.00	@	1.05
No. 2 Mixed	.90	@	1.00
Ledger & Writings	1.55	@	1.65
Solid Books	1.25	@	1.35
Blanks	1.70	@	1.80
Krafts	1.90	@	2.00
New Kraft Cuts	2.25	@	2.35
Manila Envelope Cuttings	2.00	@	2.10
Ex. No. 1 Manila	1.55	@	1.65
Print Manila	.90	@	1.00
Folded News (overissue)	.65	@	.75
Old Newspapers—			
No. 1	.65	@	.75
No. 2	.60	@	.65
Mixed Papers—			
No. 1	.70	@	.80
Roofing Stocks— (F. o. b. Chicago, net cash)			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

(F. o. b. Mill)

Bonds	.07	@	.40
Ledgers	.11	@	.40
Writings—			
Superfine	.13	@	.18
Extra fine	—	@	.22
Fine	.20	@	.26½
Fine, No. 2	.16	@	.25
Fine, No. 3	.12	@	.20
Book, M. F.	.06	@	.07
Book, S. S. & C.	.06	@	.07½
Book, Coated	.11	@	.16
Coated Lithograph	.09	@	.12
Label	.09	@	.12
News	.03¼	@	.04
No. 1 Jute Manila	.08½	@	.09
Manila Sul., No. 1	.04½	@	.06
Manila, No. 2	.04	@	.04½
No. 2 Kraft	.05¼	@	.05½
No. 1 Kraft	.06	@	.06¼
Common Bogus	.02¾	@	—
Straw Board	60.00	@	65.00
News Board	47.50	@	—
Chip Board	45.00	@	—
Wood Pulp Board	4.50	@	5.00
(Carload Lots)			
Binder Boards—			
No. 1, per ton	80.00	@	90.00
No. 2, per ton	75.00	@	80.00
Carload lots	65.00	@	75.00
Tarred Felts—			
Regular	58.00	@	63.00
Slaters (per roll)	84	@	.94
Best Tarred, 1-ply (per roll)	1.85	@	1.95
Best Tarred, 2-ply (per roll)	1.44	@	1.54
Best Tarred, 3-ply	1.93	@	2.08
No. 1 Mixed Paper	.65	@	.70
New Blue	—	@	.04
New Black Soft	.05½	@	.06
New Light Seconds	.03	@	.03½
Khaki Cuttings	.04½	@	.05
Corduroy	.03	@	.03¼
New Canvas	.08	@	.09½
New Black Mixed	.05	@	.05½

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.11½	@	.12
New White, No. 2	.07	@	.07½
Light Silesias	.07	@	.07½
Silesias, No. 1	.07½	@	.08
Black Silesia, soft	.05	@	.05½
New Unbleached	.10½	@	.11
Washable	.04	@	.04½
Fancy	.05½	@	.06
Cottons—according to grades—			
Blue Overall	.07½	@	.08

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.75	@	2.00
Domestic	1.75	@	2.00
Manila Rope	3.00	@	3.50
Sisal Rope	1.50	@	—
Mixed Rope	1.10	@	1.25
Scrap Burlaps	1.40	@	1.50
Wool Tares, heavy	3.00	@	—
Mixed Strings	1.15	@	1.25
No. 1, New Light Burlap	2.50	@	2.75
New Burlap Cuttings	—	@	2.50

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	3.25	@	3.35
No. 2 Hard White	3.00	@	3.25
No. 1 Soft White	2.40	@	2.50
No. 2 Soft White	1.90	@	2.00
No. 1 Mixed	1.50	@	1.60
No. 2 Mixed	.90	@	1.00
Solid Ledger Stock	2.00	@	2.10
Writing Paper	1.75	@	1.90
No. 1 Books, heavy	1.75	@	1.90
No. 2 Books, light	1.25	@	1.40
No. 1 New Manila	2.40	@	2.50
No. 1 Old Manila	1.50	@	1.60
Print Manila	1.00	@	1.10
Container Manila	.80	@	.90
Old Kraft	2.25	@	2.50
Common Paper	.55	@	.60
No. 1 Mixed Paper	.55	@	.60
Straw Board, Chip	.65	@	.75
Binders Board, Chip	.65	@	.75
Overissue News	.80	@	.90
Old Newspaper	.55	@	.60

Domestic Rags (Old)

White, No. 1—			
Repacked	4.50	@	5.25
Miscellaneous	3.50	@	4.00
White, No. 2—			
Repacked	.02½	@	.02¾
Miscellaneous	.02	@	.02¼
Thirds and Blues—			
Repacked	2.50	@	2.75
Miscellaneous	1.80	@	2.00
Black Stockings	3.75	@	4.00
Roofing Stock—			
No. 1	1.65	@	1.75
No. 2	1.40	@	1.50
No. 3	1.25	@	—
No. 4	.85	@	1.20
No. 5A	.85	@	.90
B	.80	@	.90
C	.70	@	.80

BOSTON

Paper

(F. o. b. Mill)

Ledgers—			
Sulphite	.07½	@	.15
Rag content	.15	@	.30
All rag	.38	@	.52½
Bonds—			
Sulphite	.06½	@	.11¾
Rag content	.15	@	.30
All rag	.36½	@	.65
Writings	.07	@	.20
Superfines	.11	@	.31
News	.03½	@	.04
Book, Super	.06	@	.09
Book, M. F.	.05¼	@	.08½
Book, Coated	.08½	@	.20
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.05½	@	.06½
No. 2 Kraft	.03¾	@	.04½
Common Bogus	.02¼	@	.02¾
Delivered New England points			
Straw Board, rolls	.009		57.50
Straw Board in Sheets, basis 35s to 70s			54.50 @ 55.00
Filled News Board			47.50
Chip Board			45.00
Single Manila Pulp lined board			55.00 @ 60.00
Single White, patent coated board bender			72.50 @ 80.00
Wood Pulp Board			80.00 @ 85.00
Binder Boards			70.00 @ 75.00
(F. o. b. Mill)			
Tarred Felts— Regular, carload lots			65.00 @ —

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	3.25	@	3.75
No. 2 Hard White	2.60	@	2.90
No. 1 Soft White	2.45	@	2.55
No. 1 Mixed	1.10	@	1.15
No. 2 Mixed	.85	@	.90
Solid Ledger Stock	2.35	@	2.45
No. 1 Books, Heavy	—	@	1.75
No. 1 Books, Light	—	@	1.15
Manila Env. Cuttings	2.00	@	2.25
No. 1 Old Manila	1.20	@	1.25
White Blank News	1.40	@	1.50
Old Kraft	2.00	@	2.10
Print Manila	.70	@	.80
No. 1 Mixed Paper	.47½	@	.50
Overissue News	.70	@	.80
Old Newspapers	47.50	@	52.50
Box Board, Chip	.65	@	—

Bagging

(Price f. o. b. Boston)

Gunny No. 1—			
Foreign	—	@	1.60
Domestic	—	@	1.50
Manila Rope—			
Foreign	3.00	@	3.25
Domestic	3.00	@	3.50
Mixed Strings	.85	@	1.00
Scrap Burlaps	1.50	@	1.60
Wool Tares, heavy	—	@	1.50
New Burlap Cutting	—	@	2.00

Domestic Rags (New)

(Price f. o. b. Boston)

Shirt Cuttings—			
New White No. 1	.09	@	.10
Silesias, No. 1	.07	@	—
New Unbleached	.09¼	@	.10
Fancy	.04	@	.04½
Washable	.04	@	.04½
Cottons—According to grades			
Blue Overalls	.06	@	.06½
New Black, soft	.04	@	.04¼
Khaki Cuttings	.04	@	.04¼
Corduroy	.03	@	.03½
New Canvas	.08	@	.08½

Domestic Rags (Old)

(Price f. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	4.75	@	5.25
Miscellaneous	5.00	@	—
White No. 2—			
Repacked	.04½	@	.05
Miscellaneous	.03½	@	.04
Thirds and Blues—			
Repacked	2.00	@	2.15
Miscellaneous	1.75	@	1.90
Roofing Stock—			
No. 1	1.75	@	1.85
No. 2	1.25	@	1.35
No. 3	1.05	@	1.10
No. 4	1.10	@	1.15

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.60	@	1.65
New No. 1 Shirt Cuttings	9.00	@	10.00
Dutch Blues	2.00	@	2.12½
Lace Curtains	4.50	@	5.00
New Checks & Blues	4.50	@	4.65
Old Fustians	1.90	@	—

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.12½	@	—
No. 2 Sulphite	.10¾	@	—
No. 1 Colored	.13½	@	—
No. 2 Colored	.11¾	@	—
Ledgers (sulphite)	—	@	—
Ledgers, No. 1	.36	@	—
Ledgers, No. 2	.27	@	—
Writing	.09½	@	.10
News f. o. b. Mills—			
Rolls (carloads)	3.25	@	—
Sheets (carloads)	3.75	@	—
Sheets (2 tons or over)	4.00	@	—
Book—			
No. 1 M. F. (carloads)	7.50	@	—
No. 2 M. F. (carloads)	7.25	@	—
No. 3 M. F. (carloads)	7.00	@	—
No. 1 S. C. (carloads)	8.00	@	—
No. 2 S. C. (carloads)	7.75	@	—
No. 3 S. C. (carloads)	7.50	@	—
No. 1 Coated and Litho	14.50	@	—
No. 2 Coated and Litho	13.50	@	—
No. 3 Coated and Litho	12.75	@	—
Coated tinted	.15	@	—
Wrapping—			
Rag Brown	4.95	@	—
White Wrap	5.25	@	—
"B" Manila	5.80	@	—
No. 1 Manila	6.65	@	—
Fiber	6.65	@	—
Kraft, M. F.	7.00	@	—
M. G.	7.00	@	—

Pulp

(F. o. b. Mill)

Ground Wood	30.00	@	31.00
Sulphite easy bleaching	62.00	@	—
Sulphite news grade	62.00	@	—
Sulphite, bleached	75.00	@	—
Sulphate	65.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	3.00	@	—
Soft White Book Shavings	2.85	@	—
White Blk, News	1.50	@	—
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.40	@	—
Light and Crumpled Book Stock	1.25	@	—
Ledgers and Writings	1.50	@	—
Solid Ledgers	1.50	@	—
Manilas—			
New Manila Cut	1.50	@	—
Printed Manilas	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.80	@	—
No. 1 Mixed Paper	.65	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.11½	@	—
Fancy Shirt Cuttings	.05½	@	—

BOLTON QUALITY

JOHN W. BOLTON & SONS, INC.

EAGLE KNIFE & BAR WORKS

Lawrence, Mass.

The only firm making KNIVES for every machine from wood pile to finishing room.

It's the KNIVES that do the work!

Prompt deliveries made from stocks in
NEW YORK
BOSTON
PHILADELPHIA
CHICAGO

TRADE MARK

When vacationing . . . .

Don't feel uneasy about the quality of the production turned out in your absence, insofar as dyestuffs are concerned. Put Heller & Merz Colors on the job. They have been delivering the goods for nearly sixty years.

Heller & Merz is constantly studying the needs of the consuming industries—and consequently, supplying constructive service.

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Springfield, Mass. 24 Lester Street

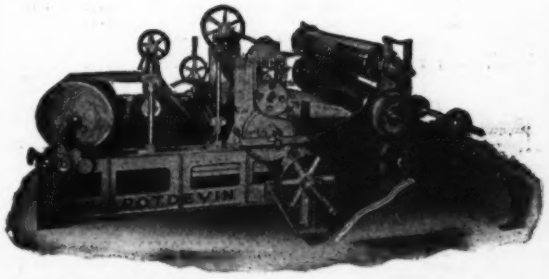
Factory—NEWARK, N. J.

POTDEVIN

PAPER WAXING MACHINERY

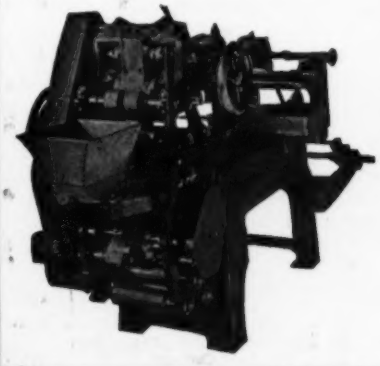
Three Widths—52" - 64" - 80"

LIGHT OR HEAVY COATING
WET OR DRY WAX
ONE OR BOTH SIDES



POTDEVIN MACHINE CO.

1223 38th Street, Dept. 4, Brooklyn, N. Y., U. S. A.
Phones: Windsor 1700, 1701, 1702



HIGHEST SPEED
Paper Bag Machinery

Get My Quotations Before Placing Your Orders
Special Machinery Designed and Built

A. L. PARRISH,
1702 Robinson St., South Bend, Ind.

Paper Mill Stocks and Bonds

Quoted by Messrs. McGay & Co., 25 Broad street, New York City, to whom all inquiry for quotations on these or any other Securities is referred.

BONDS	BID	ASKED
Abitibi Fibre Company 6s, 1947	104	105
Abitibi Power & Paper 6s, 1940	104½	106½
Abitibi Power & Paper 6s, serially to 1934	100	102
A. P. W. Pulp & Power 7s, 1945	101½	103½
American Writing Paper 6s, 1947	85	88
Bastrop Pulp & Paper 6½s, 1940	103½	105½
Beaver Board 8s, 1933	102	103
Beaver Products Corp. 7½s, 1942	109	111
Bedford Pulp & Paper 6½s, 1942	98	100
Belgo-Canadian Paper 6s, 1943	103	105
British-Columbia Pulp & Paper 6s, 1950	90	92
Brompton Paper Serial A 6s, 1946	101	103
Brompton Pulp & Paper 6s, 1935	100	...
Brown Paper Mills Serial 6s, 1941	99	101
Brown Company 5½s, 1946	99	101
Bryant Paper 6s, 1942	100	101½
Canadian Paper Board 7s, 1937	97½	99½
Cape Breton Pulp & Paper 6s, 1932	103	...
Celotex Company 6s, 1929	97	99
Celotex Company 6½s, 1939	100	102
Celotex Company of Chicago Debenture 6s, 1936	97	100
Central Paper Company Serial 6½s, 1942	86	89
Central Paper 7s, 1934	85	90
Champion Coated Paper Serial 6½s, 1934	100	...
Champion Coated Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 6s, 1941	100	102
Champion Fibre Notes 8s, 1930	100	...
Champion Paper Corp. 6s, 1945	95	98
Chicago Mill & Lumber Serial 5½s, 1936	98	100
Container Corp. of America Debenture 6s, 1936, ex-warrants	101	104
Continental Paper Products 6½s, 1943	92	95
Cornell Wood Products 7½s, 1937	103	...
Crown Willamette 6s, 1951	102	103½
Dells Paper & Pulp Serial 6s, 1938	95	98
Dixon Board Mills Serial 6s, 1942	60	...
Donnaconna Paper 5½s, 1948	95	98
Eastern Manufacturing Co. 7s, 1938	98	100
Escanaba Paper Serial 6s, 1939	98	100
Escanaba Paper 6½s, 1935	96	99
Filer Fibre Serial 7s, 1935	90	95
Fort Orange Paper 7s, 1942	103	...
Fort William Paper 6s, 1946	101	104
Fox River Paper 7s, 1931	100	...
Fraser Company 6s, 1950	103	105
Hammermill Paper Serial 6s, 1939	101	...
Hawley Pulp & Lumber 6s, 1946	96	...
Hawthorne Paper Company 6s, 1937	80	...
Hoberg Paper & Fibre 7s, 1937	95	97
Industrial Fibre Corp. Debenture 8s, 1933	100	...
International Paper 6s, 1955	102	104
International Paper 5s, 1947	99	101
Itasca Paper & Prairie River Paper Serial 5½s, 1938	99½	...
Itasca Paper & Prairie River Paper Serial 6s, 1938	99	...
Jessup & Moore First 6s, 1945	88	92
Kalamazoo Vegetable Parchment 6s, 1938	99	101
Lake Superior Pulp & Paper 6s, 1941	105	108
Manitoba Paper 6½s, 1936	102½	104½
Marathon Paper Mills Serial 5½s, 1942	99½	101
Marathon Paper Mills Serial 6s, 1937	100	...
Marinette & Menominee 7½s, 1936	103	105
Mead Pulp & Paper 5% Notes Serially, 1937	95	100
Mead Fibre 7s, 1937	98	101
Menosha Printing & Carton 6½s, 1939	99½	...
Midwest Box Company 6½s, 1940	100	...
Minnesota Ontario Paper Serial 6s, 1945	97½	100
Murray Bay Paper 6½s, 1947	102	105
Munissing Paper Serial 6s, 1936	98	...
Nekoosa Edwards Paper 6s, 1942	96	...
Ontario Pulp & Paper 6s, 1931	108½	110½
Orono Pulp & Paper 6s, 1943	99	...
Orono Pulp & Paper 5s, 1941	96½	...
Oswegatchie Paper Serial 6s, 1932	95	100
Oswego Falls Corp. 6s, 1941	99	102
Oxford Paper 6s, 1947	102½	...
Paepcke Paper Mills 7s, 1930	99	...
Parker-Young Company 6½s, 1944	98	100
Paterson Parchment Paper 6s, 1938	101½	103
Penobscot Chemical Fibre 6s, 1942	102	105
Port Alfred Pulp & Paper 6½s, 1943	105	107
Port Alfred Pulp & Paper 5½s, 1947	98½	100
Price Brothers 6s, 1943	105	...
Provincial Paper 5½s, 1947	98½	...
Provincial Paper 6s, 1940	100	...
Queen City Paper 7s, 1933	98½	...
Richardson & Company 6s, 1938	100	...
River Raisin Paper 6s, 1936	99	101
Riordan Pulp & Paper 6s, 1942	102	104
Rolland Paper 6s, 1937	99	101
St. Anne Paper 6½s, 1946	102	104
St. Croix Paper Serial 5s, 1937	99	...
St. Helen Pulp & Paper 6½s, 1931	99	102
St. Lawrence Paper Mills 6s, 1946	103	...
St. Lawrence Paper Mills 6½s, 1936	100½	102½
St. Maurice Valley Corp. 6s, 1945	102	104
St. Maurice Valley Corp. 5½s, 1947	98½	100½
St. Regis Paper of Canada 6s, 1931	100	101½
St. Regis Paper of Canada 6½s, 1934	100	101
Smith (Howard) Paper Mills 6s, 1934	101	...
Smith (Howard) Paper Mills 7s, 1941	104	106
Southern Paper Company 6½s, 1937	100	...
Spanish River Pulp & Paper 6s, 1931	108	110
Stevens-Thompson Paper 6s, 1942	94	96
Taggart Brothers 6s, 1944	95	100
Tait Paper & Color Industries 6s, 1935	88	92
Ticonderoga Pulp & Paper 5s, 1930	94	...
Ticonderoga Pulp & Paper 6s, 1940	100	103
Tomahawk Kraft Paper 6s, 1938	98	...
Tomahawk Pulp Paper 7s, 1932	99	...
Tonawanda Paper 5½s, Series 1941	99	102
U. S. Envelopes 5s, Series 1934	99	...
Union Bag & Paper Power 6s, 1932	98	100
United Wall Paper Factories 6s, 1947	96	99
Warren (S. D.) Company 6s, 1945	103	105
Watab Paper 6½s, 1942	101½	103½
Waterway Paper Products 6s, 1931	100½	101½
Wayagamack Pulp & Paper 6s, 1951	103	105
Westfield River Paper Serial 7s, 1943	89	93
Whitmer-Parsons Pulp & Lumber 8s, 1938	20	25
Whitaker Paper 7s, 1942	108	110

STOCKS	BID	ASKED
American Box Board, Pfd.	9¼	10¼
American Box Board, Com.	9¼	10¼
Am. Tissue Mills, 7% Pfd.	90	93
British Columbia P. & P., Pfd.	65	75
Brompton Pulp & Paper, 8% Pfd.	100	102
Brown Corpn., 7% Pfd.	104	None Off.
Champion Fibre, 7% Pfd.	108	110
Diem & Wing, 7% Cum. Pfd.	92	97
Eastern Mfg. Co., 1st Pfd.	60	63
Great Northern Paper, Com.	72	77
Hammermill Paper, new 6% Pfd.	98	100
Hinde & Dauch, Com.	125	None Off.
Hinde & Dauch, 6% Pfd.	102	None Off.
Holyoke Card & Paper	150	None Off.
Marathon Paper Mills, Com.	125	...
Midwest Box Co., 8% Pfd.	98	102
Midwest Box Co., 6% Pfd.	95	99
Louis De Jonge Co., 7% Pfd.	94	97
Oxford Papers, Com.	115	135
Oxford Paper Co., Pfd.	108	111
Penobscot Chemical Fibre, Com.	70	80
Richardson Co., Com.	160	180
Rubberoid	90	100
Sabin Robbins Paper Co., 7% Pfd.	105	110
St. Croix Paper	155	170
St. Regis Paper Co., 7% Cum. Pfd.	105	108
Westfield River Paper Co., 1st Pfd.	Wanted	None Off.
West Virginia Pulp and Paper Company	57	61
West Virginia Pulp & Paper, Pfd.	100	103
Whittaker Paper, 7% Cum. Pfd.	105	None Off.

Sutherland and Standard Paper Companies To Merge

KALAMAZOO, Mich., July 3, 1928.—Merger of the Sutherland Paper Company and the Standard Paper Company into a corporation with a capitalization approximating $2,750,000 and surplus in excess of $1,000,000 is now being promoted and is practically certain of consummation during the early part of July.

This consolidation will give the succeeding corporation two mills operating four machines and with a combined daily output of 200 tons of board, together with two modern converting plants, equipped for the most efficient production of both waxed and dry folding cartons. It will place the local concern in a commanding position in its field.

The outstanding stock of the Sutherland Paper Company is 175,000 shares of $10 par common and of the Standard Paper Company 95,040 shares of like denomination. The board of directors of the former company have approved of an offer to exchange one share of Sutherland Paper Company stock for one share of Standard Paper Company stock. Those stockholders of the Standard who do not care to exchange stock may accept an offer of Keane, Higbie & Co., Detroit, who will pay $25 a share for the Standard stock. Over fifty per cent of the stockholders of the Standard Paper Company have agreed to accept the proposition.

A special meeting of the stockholders of the Sutherland Paper Company has been called for Monday, July 9, to ratify the offer and increase the capital stock of the company to take care of the new stock necessary for exchange purposes.

It is reported on good authority that the previous deal whereby the Sutherlands hoped to secure control of the mill of the Western Board and Paper Company has fallen through. Louis W. Sutherland and Frederick W. Sutherland made an offer of $20 a share for at least 66 2/3 per cent of the 25,000 shares of Western Board stock outstanding. They were prepared to pay cash for this stock and Western Board stockholders were asked to deposit their respective holdings with Charles S. Campbell, president of the First National Bank and Trust Company. Their response was so far delayed that the Sutherland-Standard merger was inaugurated.

As plans for the consolidation have been gradually disclosed, there has been a wild scramble for both Sutherland and Standard

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May we tell you how CAMACHINES have kept pace with the needs of the paper industry, and how the right slitter and roll winder will save you money by speeding up production and cutting down waste? Just drop us a line.

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PAPER TRADE
ESTABLISHED 1872
JOURNAL

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

FIFTY-SEVENTH YEAR

Published Every Thursday by the

LOCKWOOD TRADE JOURNAL CO., Inc.

GEO. S. MACDONALD, President — J. K. LASSER, Secretary

Executive and Editorial Offices, 10 East 39th Street, New York
Chicago Office: 123 West Madison St

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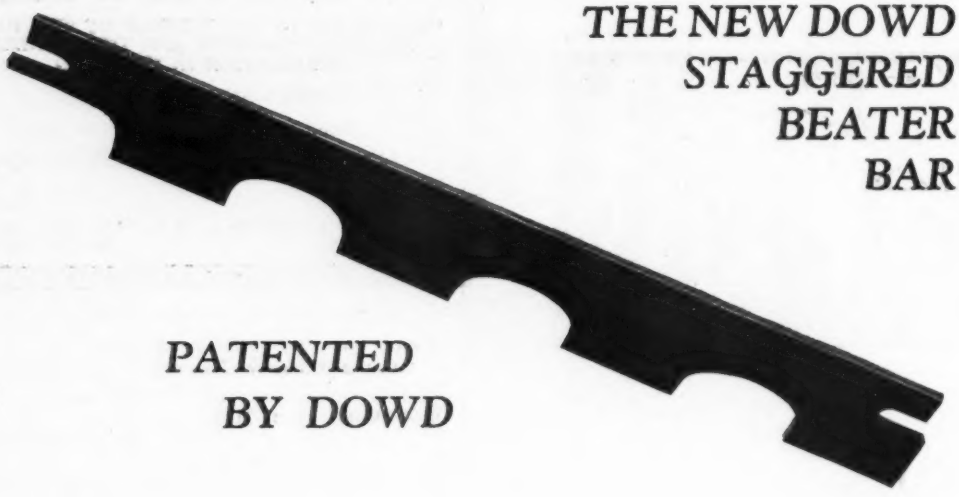
Announcing

THE NEW DOWD STAGGERED BEATER BAR



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All kinds of stock circulate about one-third faster when this new bar is used on the rolls.

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Filled with this bar, a beater roll has nearly three times the draft of ordinary rolls. The tendency is to tear or shread the stock and not carry it about the roll.

Ordinarily from twenty to forty minutes time is required to fill a beater engine where stock is sulphite sheets, laps, mixed papers, or broke. With this new Dowd filling, the beater can be completely filled in practically one-half the time without using paddles.

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